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American Journal of Surgery and Gynecology.

VOLUME XIV. ST. LOUIS, MO., MAY, 1901. NUMBER 10

BLOODLESS AMPUTATION AT THE HIP IN RAILWAY SURGERY.*

BY JOHN A. WYETH, M. D., NEW YORK CITY,

Professor of Surgery in the New York Polyclinic.

The death-rate in amputations at the hip-joint has been reduced to less than 10 per cent by the adoption of the "Wyeth method" of operation—in cases where the procedure is necessary from causes other than acute trauma. In railway surgery the mortality must of necessity remain very high, always, in spite of the advantages of this method, since the trauma is so great as to kill a large proportion of the injured regardless of any efforts on the part of the surgeon.

Thus in a series of cases, a report of which I shall present to the American Medical Association at St. Paul next June, there were 36 instances of injury, with or without septic infection, in which the Wyeth amputation was performed, with 23 deaths—a ratio of mortality of 63.9.

Twenty-four of these cases will be of especial interest to the readers of the "Railway Number" of the American Journal of Surgery and Gynecology, since they were disarticulations at the hip on account of the extensive injury to one or both lower extremities by railway trucks or heavy machinery.

Case 1. Right leg and foot and left lower extremity crusht as high as middle of thigh. Amputation at the hip on one side, and at the knee on the other. Died of shock in four hours.

Case 2.—Pulpefaction of lower extremity as high as middle of the thigh. Died in ninety hours, shock.

Case 3.—Crush and pulpefaction as high as upper third of thigh. Profuse hemorrhage before admission. Died of shock within a few hours.

Case 4.—Recovered from first operation; secondary hemorrhage ensued. Amputation at hip-joint; died in eight hours, shock.

Case 5.—Died in forty-eight hours, one extremity amputated at hip, the other just below the knee. Internal injuries.

Case 6.—Died of shock in five hours. Hypodermic salt solution. Patient's condition was practically hopeless on account of other injuries.

Case 7.—Railrad crush, great laceration and much hemorrhage. Amputation eight hours after injury. Died of shock within a few hours.

Case 8.—Railroad crush of left thigh and soft parts pulpefied; salt solution injected in veins. Died in twenty hours, shock.

Case 9.—Crush and pulpefaction, involving the thigh and the illium and outer rim of pelvis, severe hemorrhage. Died in three hours, shock.

Case 10.—Extensive comminution of bones, pulpefaction of soft parts, kidney lacerated; died in shock.

Case 11.—Crush in elevator, operation twenty-four hours after accident. Gangrene had supervened in one extremity almost to the hip, and in the opposite leg to the knee. Died in shock in six hours.

Case 12.—Crush and pulpefaction of thigh, with gangrene of entire extremity as high as seat of wound. Died.

Cases 13, 14, 15 and 16 also died from the severity of the injury plus the shock of operation.

But cases 17 to 24, inclusive, with injuries nearly as severe, recovered after the disarticulation, giving a mortality of 66.6 per cent. Taking into consideration the character of the trauma and the unfavorable conditions to which the patients were subjected, this high rate of mortality is not surprising. Hemorrhage occurred, more or less severe in all instances, and it was difficult at all times to overcome the shock which supervened.

It is more than probable that when trains are properly equipt with life-saving apparatus: rubber tourniquets, antiseptic or sterile gauze dressings, etc., and when the employes are trained in the simple methods of applying them in emergencies; and when the intravenous injection of saline solution shall be more freely employed by the surgeons who have these cases in charge, the death-rate will be greatly reduced.

*Prepared especially for the Railway Surgeons' Number.

A COMPACT OPERATING CASE FOR RAILWAY SURGEONS.

BY N. SENN, M. D., PH. D., LL. D., CHICAGO, ILL.,

Professor of Surgery in Rush Medical College and the Chicago Polyclinic.

The operative work of the railway surgeon is practically limited to the treatment of accidental wounds, since all great railway systems now require that other than minor and emergency cases be sent to hospital for operative treatment. His success as a surgeon therefore depends largely upon his proficiency in guarding against wound-infection and his mechanical skill in the treatment of compound fractures!

Sometimes, however, in some great accident, he will find himself thrown on his own resources with a limited supply of instruments and dressing-material, and most often without skilled assistants; and under these trying circumstances is compelled to perform some of the most difficult operations, which cannot be postponed. Railway surgery, then, as distinct from surgery in general, is in every sense of the word emergency surgery. A quick perception of the nature of the case, and prompt, intelligent action are necessary to save life under conditions of exceeding excitement—with perhaps many wounded pleading at the same time for surgical relief. The railway surgeon therefore must possess the necessary knowledge, the proper appliances and the manual dexterity to perform at a moment's notice all life-saving operations in cases demanding timely intervention to meet urgent indications.

Of greatest importance—next to knowledge and presence of mind—is a properly-equipt emergency case. Aseptic surgery has necessitated a great change in the manufacture of surgical instruments. All attempts at ornamentation have been abandoned—simplicity is now the rule: knives and retractors are made in one piece, niches and grooves are avoided whenever possible, and scissors and hemostats are constructed so they may be readily separated into two parts and speedily joined again—to facilitate thoro cleansing. Another great improvement of late is their smaller size and more delicate construction. The old-fashioned, sword-like "amputating knife" is rarely seen now, as all surgeons have abandoned transfixion methods and make all amputations with a medium-sized scalpel.

The best surgeons use the finest instruments.

Very few instruments are required for even complicated operations, providing proper selection is made—and the surgeon knows what he should about operative technic. The railroad surgeon, especially, should learn to do his work well with the smallest possible number of instruments; his operating case should be particularly adapted to emergency work. Unfortunately, the inventive skill of the instrument-makers has not kept pace with the rigid demands of modern, aseptic surgery. The old-time, velvet-lined instrument-case gave way to modern boxes without lining, and to the so-called "aseptic" metal pocket-cases; but both the latter were highly objectionable from many standpoints.

For some years I made an extended study of the proper case and contents for surgical work in military and other emergency work. Observation and ample experience have shown that the instruments necessary in emergency work can be safely carried in roll-up, washable, canvas rolls, in which each article is held securely in place by non-elastic loops. If the name of each instrument is stampt with indelible ink in the place it should occupy, there will be no difficulty in properly and quickly replacing the entire set after use. A second and similarly stampt roll, properly sterilized, should be in readiness in a separate compartment of the satchel or outer leathern case, so the instruments may be transferred to it when the first is soiled.

The form and character of the canvas roll for holding instruments is of greatest importance. It should be light, soft and flexible, without any sharp corners; and, if possible, small enough to be carried in a hand-bag or even an overcoat pocket. In my own "field-case" the outer cover is made of soft leather, with rounded ends and corners, with double compartment: one for the roll of instruments, the other for the empty canvas roll. A slip-handle, also of leather, is provided so the case may be carried like a hand-bag.

The instruments selected for this "emergency case" are as follows:

1 metal catheter (combined male and female).
11 hemostatic forceps.
1 Abbe's needle-holder.
1 small scalpel.
1 large scalpel—for major amputations, etc.
1 curved, sharp-pointed bistoury.
1 small tenotome.
1 tenaculum.
1 straight scissors.
1 scissors curved on the flat.
1 bone-cutting forceps.
2 double-end retractors, with guards.
1 Senn's saw, with guard for blade.
1 plain dressing forceps.
2 Senn's tissue-forceps, with 3 and 5 teeth and catch-slide.
1 bone chisel.
1 bone gouge.
1 sharp spoon and periosteal elevator (combined).
1 bullet-forceps.
2 ordinary probes.
1 exploring trocar.
12 silkworm-gut sutures.
12 surgical needles, assorted.
2 skeins of silk.
1 coil of silver wire.
6 needles for intestinal suturing.

The knives are included in two metallic plates that rest side by side, forming one fold of the canvas roll. The knives should be of one piece of steel, with the handle corrugated to ensure a firm grasping-surface.

The most important feature is the sufficient quantity of hemostates (I prefer Kocher's, which does not slip).

The retractors should be each provided with blunt and sharp retracting blades—the latter three-pronged and furnisht with guards to permit of safe use of the sharp end as a handle when the blunt retractor is needed for use.

A mallet is not included, as some substitute for it can be found almost anywhere, and either sterilized or envelopt in gauze.

The canvas cover should be not less than eight inches in width and thirty-one inches in length. It is best to enclose it in a flexible leather cover nine inches in length, five inches in breadth and five inches in thickness. The whole thing complete weighs four and one-half pounds.

One of the chief advantages of the canvas instrument case is that—if necessary—after removal of the leather cover everything (including needles and suture-material) may be sterilized at a moment's notice by boiling for a few minutes in a solution of sal soda.

After operation the instruments must be thoroly cleansed, dried and transferred to the second aseptic canvas container.

AMBULATORY TREATMENT OF FRACTURES INVOLVING THE HIP-JOINT.*

BY DANIEL W. MARSTON, M. D., NEW YORK CITY.

Instructor in Orthopedic Surgery, New York Post-Graduate Medical School and Hospital; Attending Surgeon to Daisy Fields Hospital for Crippled Children and Randall's Island Hospitals, New York City.

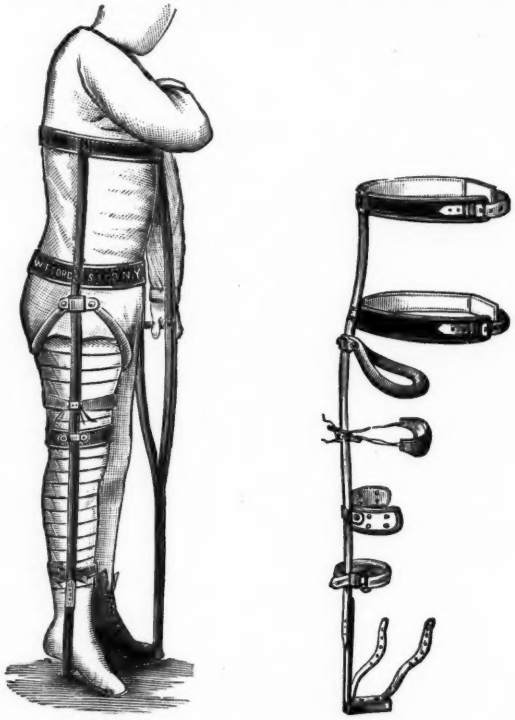
Many practitioners have witnest in their work among the aged cases of asthenic hypostatic pneumonia, subsequent to, or accompanying, the long confinement in bed incident to fractures involving the hip-joint.

To prevent the possibility of such a complication, as well as to avoid the development of bed-sores, is the duty of every surgeon. To get the patient suffering from a fractured hip out of bed and up and around his house on crutches will not only prevent the liability of these unpleasant complications, but will support the patient's general health in a time when strength is most needed.

I no longer use the plaster-of-Paris spica bandage in these cases, nor the long T-splint, but am now thoroly committed to the use of the hip-brace shown in the accompanying illustrations. It is practically the same brace designed a dozen years ago by Phelps for the treatment of tuberculous and purulent disease of the hip. In cases of fracture, the thoracic band, shown in the cuts, is not always necessary, and if used, is located much lower and nearer the pelvic band. I believe this to be the best brace devised for hip-joint disease, and it is equally as efficient in cases of fracture into the joint.

The brace of Thomas, of Liverpool, for this deformity, as advocated by Ridlon, of Chicago, does not provide extension. Thomas did not believe in the theory of muscular spasm and intra-articular pressure, and so was conscientious in not using extension on his well-known braces.

In impacted fractures of the hip, extension is, of course, not indicated. In the majority of fractures involving this joint, however, the fragments are not impacted, and great muscular spasm



is a prominent feature of the case. It is in this class that I favor the early application of a splint, employing extension and firmly holding the pelvis, thus preventing the slightest movement between the fragments. This brace, or splint, is an ischiatic crutch. The ischiatic ring takes the body weight upon the tuberosity of the ischium. This also provides a point for counter-extension. The mole-skin plaster straps from two inches below the trochanter major down to one inch above the malleoli furnish the means of longitudinal extension when attacht to the straps at the lower end of the brace. The bands around the body complete the immobilization of the hip and trunk. The patient wears a two-inch elevation upon the opposite shoe and walks with crutches.

This method of treatment will shorten greatly the period of confinement in bed usually seen. The measurements are best taken by placing the patient upon a smooth sheet of plain paper. With a pencil trace an outline of the patient from two inches above the anterior superior spinous process down the side of the leg to the sole of the foot. Make a mark on the paper corresponding to the tuberosity of the ischium. Take the circumferential measurements of the trunk just below and just above the anterior-superior spine for the upper and lower bands. In at least half of the cases the uppermost band may be dispenst with. The groin measurement for the ischiatic ring is from the tuberosity, close in the fold, to just over the trochanter major. This is different than in using the same brace for hip-disease where the ring should come one inch above the trochanter major, allowing space for lateral traction. In fracture it is better directly over the trochanter, thus more firmly fixing the upper fragment. A small pad made of leather and firmly stufft with curled hair should be fastened at the outer margin of the ring to the outside bar of the splint. This pressure-pad can be governed by a thumb-screw, and makes the immobilization of the fragments absolute.

With these measurements any carriage-maker or blacksmith can manufacture the appliance. The village harness-maker or cobbler can trim it, and in this way the surgeon is made independent of instrument-dealers, besides avoiding the delay which is unavoidable in ordering from a distant city.

In another article I will some time advise the best method of ambulatory treatment for fractures of the lower end of the same bone.

*Specially written for the "Railway Surgeons' Number."

AN IDEA IN THE POST-OPERATIVE TREATMENT OF EMPYEMA, WITH TWO CASES ILLUSTRATIVE.*

BY. R. J. CHRISTIE, Jr., M. D., QUINCY, ILL.,
Surgeon to Blessing Hospital.

The fact that the subject of empyema has, at this late day, elicited and engaged the studious attention of Schede, Hutton and others is sufficient evidence of the unsatisfactory post-operative course of many cases, and is deemed excuse enough for my offering this idea.

I take it that all present who have had to deal with operative cases have had the same experience: the indefinite and, in many, indeterminable duration of suppurating cavities. This uncertain and indefinite termination led Schede to devise and introduce his treatment, which amounted to an innovation. But the formidable character of the Schede operation is so apparent that to obviate its necessity would be a great desideratum, and no doubt this attracted Hutton in the devising of his plan of treatment.

Simple aspiration cures some cases, but I doubt if many surgeons at this time place much reliance upon this treatment. Drainage in the most dependent portion of the pleural cavity effects a cure in more. Drainage by the more radical method of resecting a portion of the sixth rib in the axillary line effects a cure in a greater percentage of cases. Estlander's operation cures still a larger percentage of cases, and many of the cases not terminating successfully by this plan are finally rescued by the Schede operation. Quoting from the International Text Book of Surgery, I would say that any case not yielding to drainage at the end of six weeks after operation is a chronic case, and chronic cases (as you know) continue for from six months to a year; or indefinitely.

Any treatment that will shorten the duration of cases to three and one-half weeks must be lookt upon with favor. This, I submit, my plan will do; and more: it will terminate many cases at this period that would otherwise pass to the class of chronic cases.

The plan that I propose, and have used with the most gratifying results in two cases, is as follows: The case is treated as a simple drainage case, that is, with resection of one rib and drainage thru a tube, for three weeks. At this time, union and moderately firm cicatrization of the cutaneous and subcutaneous incision will have been secured, and there will remain a simple sinus leading into the pleural cavity. Now the aspect of the case is about like this: an imperfectly expanded lung encapsulated in a fibroplastic exudate. With a patulous opening into the pleural cavity, there is no force operating to induce the lung to expand.

Hutton points out that the only reason assignable why simple cases do not often recover is by virtue of an imperfectly acting automatic valve unwittingly provided by the dressing.

The dressings, becoming pus soakt, permit the air to escape from the cavity upon forced expiration. But by compressing the opening we impede the ingress of air on inspiration, and in exact proportion to the approach to a vacuum secured in the pleural cavity do we get the passive effect of atmosphere acting both within the lung and against the thoracic wall gradually expanded in the lung and collapsing the chest wall.

This in time obliterates the cavity and the case is well.

The rationale of the Hutton plan is the same. He seeks by means of a very ingeniously contrived mechanical device to permit drainage and, upon forced expiration, the escape of air, but by the action of the valve in the device, the air is prevented from entering the cavity, and thus secures the operation of atmospheric pressure to the end as above stated.

The idea that I suggest is to forcibly extract the air from the pleural cavity and at once secure the effect of full atmospheric pressure within the lung and against the thoracic wall, which forcibly induces the immediate expansion of the lung. This is easily accomplisht by a simple apparatus, which it attacht to the vacuum chamber of an ordinary aspirator. The apparatus consists of a twenty-inch rubber tube, having a caliber of one-fourth of an inch, and provided (two inches from one extremity) with a water-cushion and a flange of rubber-dam eight inches square. The purpose of the cushion is to more effectually plug up the orifice of the thoracic sinus and that of the dam, to form an impervious contact with the chest wall.

Now the rationale and mode of application of the scheme is very simple: irrigate the pleural cavity thoroly with a non-irritating antiseptic solution; drain out the irrigating fluid as perfectly as possible; place patient in decubitus lateralis; dry the skin and annoint with sterile glycerine, an area equal in size to that of the flange on the tube; insert the tube until the cushion is arrested at the orifice; then spread out the rubber flange and press it into contact with the chest-wall by applying fluft gauze or sterilized wool; securing it in position by adhesive strips and applying a tightly fitting binder around the chest. Attach the free extremity to the vacuum chamber, turn the cock and the whole thing is done.

Case 1.—Mr. Y—— came to me with a pyopneumothorax of ten months' standing. Patient was very much emaciated, coughing incessantly, expectorating large quantities of sputum. Estlander's operation was performed at Blessing Hospital, November 2, 1900, resecting three inches, respectively, of fourth, fifth and sixth ribs. The perforation into bronchus was healed in five days. Pleural cavity was now irrigated daily with normal-salt and weak iodine solutions. The chest wall was encouraged to collapse by the application, under tension, of adhesive straps. This treatment was continued for five weeks. The patient had now, under tonics and forced nutrition, gained in strength and weight wonderfully, but the suppurating cavity was doing very indifferently. By injecting the cavity at this time it was found to have a capacity of sixteen ounces. The plan of treatment described above was then applied, and to the great amazement of all, the patient was pronounced cured (there being no pus escaping and the wound being healed), and was discharged at the end of six days. The first day of this "vis a tergo" treatment, the receptacle (the vacuum chamber) measured about one-half ounce of pus, then there was a gradual diminution for two days, when the pus seeming to have ceast entirely, the tube was removed. The treatment afforded the patient no inconvenience whatever.

Case 2.—L——, right-sided empyema, following acute pleuropneumonia. Case was operated at Blessing Hospital, March 1, 1901. A section of sixth rib was removed in axillary line and between two and three quarts of pus (estimated) escaped. The case was treated by drainage and irrigation for three and one-half weeks, at which time the operation-wound was healed, with the exception of the sinus, for the accommodation of tube. The pleural sac would now accommodate ten ounces of fluid—no pressure being used. The treatment, as in case 1, was now used, to the effect that the cavity was obliterated at once and patient discharged in six days. In regard to this case, I should append the statement that, altho the patient was a most intelligent, experienced and educated physician, he became alarmed at the sensations produced inside the thorax and abandoned the treatment at the end of thirty hours, which was, however, time sufficient, it seems, for this recent case, by holding the pleural surfaces in contact, to secure adhesion. This case was very interesting and instructive on account of the character and quality of intelligence of the patient, who could describe minutely and in detail all sensations experienced by the treatment.

*Read before the Tri-State Medical Society, Keokuk, April, 1901.

WANDERING KIDNEY.*

BY EMORY LANPHEAR, M. D., PH. D., ST. LOUIS,
President St. Louis Academy of Medical and Surgical Sciences. Gynecologist to St. Joseph's Sanatorium.

(Continued from April Issue)

DIAGNOSIS.

In making a diagnosis of either floating or displaced kidney, the greatest care must be taken, as mistakes are very easy, and may prove fatal. Both subjective and objective symptoms must be taken into careful consideration in doubtful cases, tho commonly an examination of the abdomen and loin will reveal the character of the trouble. It is frequently necessary to repeat the examination again and again before a positive opinion can be exprest as to the nature of the movable mass.

Palpation must be depended upon to an almost exclusive extent, percussion giving practically no information.

To make a thoro examination, Lindner's method is employed: Stand at the right side of the recumbent patient, whose knees are drawn up to relax the muscles of the abdominal walls, place the right hand against the anterior belly-wall and then press the left against the back in the lumbar region of the right side, to shove the kidney forward. Then put the patient on his left side, with the knees still drawn up. By sharply shaking the body, the kidney, if movable, will fall forward. The left side is similarly examined by reversing the positions.

When this method does not give satisfactory results, the directions of Frank (30) may be followed: The patient is placed recumbent and made to relax the muscles. If dealing with a right kidney, the surgeon stands to the right side, and pushes four fingers of his left hand in the loin immediately below the twelfth rib, resting the thumb lightly in front just below the ribs. The patient takes a full breath and holds it a moment, and just before he empties his lungs the surgeon presses his thumb up deeply below the ribs. During expiration the thumb follows the liver

*Address before Indian Terr. Med. Ass'n.

and the fingers press toward the front. If with the right hand the kidney can be felt below the left hand, the case is one of abnormally movable kidney. If such a condition is detected by pressing hard with the right hand and gradually loosening the grasp of the left, the kidney will slip between the fingers and gradually ascend. A normally movable kidney descends during inspiration so that its lower end can be felt, but it moves back during expiration.

In most instances, however, when the symptoms have become sufficiently prominent that the patient seeks a doctor, the kidney may be readily felt in some abnormal position, almost invariably as a freely movable mass, which may be of the size, shape and consistency of the normal organ, or otherwise according to the conditions present.

The degree of mobility varies greatly: it may be limited by adhesions, or by its normal attachments, to a quite small range in the loin or side; on the contrary (tho ordinarily the displaced or wandering organ is capable of less extensive movement than is the true floating kidney), the looseness and flaccidity of the subperitoneal connective tissue and the extent of separation of the peritoneum from its posterior attachments may be such as to permit the gland to encroach upon the opposite side of the belly, or to hang over the brim of the pelvis—tho, unlike the true floating or the congenitally misplaced kidney, it can never get into the pelvis because the peritoneum is too firmly adherent at the pelvic brim to permit the weight of the kidney to dissect it off. When the degree of mobility is so great as this, it is impossible to absolutely differentiate between floating kidney and wandering kidney without an exploratory incision; but on account of the rarity of the congenital form of displaced kidney, it may be presumed to be of the acquired variety, and operation made from the loin. Moreover, the true (congenital) floating kidney is not apt to produce symptoms of such importance as to demand surgical interference, whereas a displaced kidney of this extent of movement is very liable to cause much suffering and imperatively call for operative measures.

The "tumor" (it is usually called such by the patient, and often improperly so by the physician) having been located the question: Is it the kidney? is not always easily answered, because there are many things from which it must be differentiated.

(a) Distension of Gall-Bladder.—This is probably the most difficult to distinguish. It is particularly hard to establish the identity of a suspected mass: (1) when the liver is freely movable, as in enteroptosis; (2) when there is a very thick abdominal wall—fortunately, very uncommon; (3) when the parietes are tense and rigid, as is sometimes the case in spite of attempts of patient to relax perfectly; (4) when twist gives rise to those paroxysms closely resembling gall-stone colic; and (5) when jaundice is present. Moreover, distended gall-bladder and displaced kidney may co-exist.

Palpation is the chief guide. The gall-bladder lies close to the abdominal wall; the kidney in the depths—normally—but the intestines may rarely become so displaced as to leave the kidney against the parietes. However, if the abdominal wall be not too tense, the liver may be fixt by firmly pressing it against the ribs from the median line, when, if the mass be the gall-bladder, it cannot be pusht away, while fixation of the liver makes no difference in the amount of mobility of the kidney. In addition, there is a sickening sensation when the kidney is prest and allowed to slip away, like that produced by squeezing the ovary or testicle; which is never present with the gall-bladder. Repeated examinations in the supine, the standing and the Sims' positions* may be necessary before a distinction can be made.

(b) Tumors of the Omentum.—Primary tumors of the omentum, either malignant or benign, are so exceedingly rare as to scarcely merit mention. Only one case was met in my first 1000 abdominal sections. The malignant growth, when advanced to such a stage as to be recognized as a distinct tumor, will already have become so fixt by adhesions as to be immovable; and will have given rise to symptoms pointing to its undoubted malignancy. The benign tumor can be moved to the other side of the abdomen, far beyond the median line, while the limit of mobility of the kidney is about the umbilicus; it is likely to be much larger; and does not give rise to the general symptoms of the renal affection.

(c) Tumors of the Pylorus.—Tumors of the pylorus, either malignant or benign, closely resemble dislocated kidney in feeling and sometimes in mobility, but glide upwards instead of to one side if movable at all; but benign tumors of the pylorus are extremely rare; malignant ones become immovable quite early in their history—usually by the time they can be felt—while the kidney is very difficult to hold in any one position unless adherent from perinephritic inflammation, a condition not at all usual. Besides, by the time a pyloric tumor has attained such size as to be easily palpated, obstructive symptoms have become sufficiently prominent to make the diagnosis fairly easy.

(d) Tumors of the Pancreas.—These rare growths have been mistaken for floating kidney. A case of cyst of the pancreas in my early work was designated floating kidney by a number of excellent diagnosticians of Kansas City, Chicago and St. Louis; and one of my three cases of cancer of the pancreas so closely resembled a tumor springing from a floating kidney that I was not certain of the character of the mass until the abdomen was opened. In either malignant or benign pancreatic growths absence of all other symptoms save a movable tumor should exclude displaced kidney; for such a displaced kidney inevitably has well-markt disturbances accompanying it—quite different from those of tumors of the pancreas; but a distinction between a pancreatic growth and one arising from a true (congenital) floating kidney is not easy, and one is forced to depend in great part upon the knowledge of the patient that a floating mass has been present for a long time—possibly as far back as he can remember, the subjects of true floating kidney almost invariably knowing of its existence—which is not at all the case in acquired loose kidney. Tumors of the pancreas, too, have not so free a movement as has the loosened kidney.

(e) Intestinal Growths.—These tumors, when located in the colon near the hepatic flexure, might be confounded with displaced kidney, but they are less freely movable, are attended by few of the general symptoms of renal displacement and are usually accompanied by intestinal obstruction. Inflation of the colon with hydrogen gas does not change their relation to the gut, whereas the reverse is true of the kidney.

(f) Impacted Feces.—This may prove very deceptive, as an accumulation in the colon may closely resemble the kidney in size and feeling, be readily movable in the same directions and may even—unlike most of the other masses already mentioned—be made to disappear into the loin (slipping behind the liver), apparently into the normal location of the kidney. I have seen two cases, in which the obstruction was not complete, but of long standing, in which a diagnosis of loosened kidney had been made by several physicians and an operation advised by a prominent surgeon for one of the patients. The lax abdominal walls so often present with impaction, the shooting pains, the general discomfort and increasing ill-health, all add to the delusion. The induction of free catharsis, repeated once or twice, with high colonic irrigation, will suffice to settle the question as to character.

(g) Ovarian Tumors.—When the kidney is very low in the abdomen and the history of subjective symptoms not distinctive, it may be mistaken for an ovarian tumor. One of my neatest "ovariotomies" turned out to be removal of a cystic, degenerated, floating kidney—so disclosed after completion of the operation; fortunately, it was an inactive organ and the patient made an excellent recovery. Such, however, was not the case in a similar experience by an eminent European operator mentioned by Newman (31), who removed the only kidney the woman had. Under ordinary circumstances such an error in diagnosis should not be made. I once saw the late Chas. W. Adams, Professor of Gynecology in the University of Kansas City, remove by colpotomy an abnormally small and misplaced kidney from behind the uterus, under the impression that it was a small ovarian tumor—a most excusable mistake with such a mass.

(h) Growths of Abdominal Wall.—These are easily excluded by their comparative immobility and by the absence of general symptoms.

(i) Loose Spleen.—In one case recently under my observation, a loose spleen was pronounced to be loosened left kidney by a number of surgeons. The use of the fluoroscope revealed the true character of the trouble.

Many patients are being treated for other diseases whose symptoms depend upon a displaced kidney—the existence of which may or may not be known to the patient; if known, its significance being not duly appreciated.

Disturbances of the Stomach.—Probably the most frequent error in diagnosis is that of regarding the digestive derangement

*The position employed for use of the Sims' speculum completely relaxes the abdominal wall.

The history giving, on the one hand, symptoms pointing to obstruction of the bile-duct, and, on the other, to the neurasthenic condition so often accompanying misplaced kidney, may help to clear up the matter.

Aspiration has been advised; it cannot be too strongly condemned on account of its extreme danger. Exploratory abdominal section would be far safer.

The Roentgen-ray may possibly prove of value later on if it may be brought to such a state of perfection as to show gall-stones; at present its use is practically valueless on this particular point.

due to the kidney displacement, as those of "dyspepsia," or other gastric trouble. The stomach almost invariably participates largely in the subjective symptoms—to such a degree that, in addition to the loss of appetite, there are occasional attacks of vomiting and of cardiac palpitation; and disturbances of urinary secretion being absent, the diagnosis is obscure unless the patient happen to mention or the physician to find the wandering organ. In every suspicious case of indigestion, especially if accompanied by obscure pains and neurasthenic symptoms, a most careful examination should be made to detect loose kidney if it exist.

Hysteria and Neurasthenia.—Undoubtedly a considerable number of patients suffering from what the neurologists are pleased to term hysteria and neurasthenia are victims of displaced kidney. I have totally relieved all of the nervous disturbances of a sufficient number of patients by performing nephrorrhaphy to make me positive in the assertion that every hysteric and every neurasthenic should be thoroly examined for abnormally loose kidney; which, if found, should be immediately sutured.* As Allison says (32): "In all cases the neurotic element is a prominent one, and in an emaciated woman with diversified symptoms of a nervous type, a movable kidney may be suspected." But it should always be borne in mind, as he further remarks, that "a set of symptoms simulating those usually found with movable kidney may be present and associated with mobility of this organ, yet the condition of the kidney in such a case may not be the leading cause of a disturbed nervous system; but in the majority of cases an intelligent effort toward eliminating the purely hysterical element will prevent an error in this direction."

Melancholia.—The mental depression mentioned under the head of symptoms may deepen to a true melancholia. In searching for sources of chronic irritation in this condition (as should always be done in every recent case of melancholia as well as hypochondriasis), when the colon is examined for the quite common fecal impaction, attention should invariably be directed to the location of the kidney; if abnormal in position, it should be restored by proper means.

While giving this advice to operate upon every case where markt displacement of the kidney exists with exceptionally bad symptoms, I cannot but agree with Fenwick (33) who, as a result of a study of his first one hundred operations on the kidney—eleven nephrorrhaphies—says: "There is a tendency to diagnose this condition too often in obscure kidney disease; like the diagnosis of la grippe and gout, it is made to cover a multitude of varied conditions. If the surgeon, for instance, on nephrotomy, can find no stone, the kidney is stitcht into the wound, and if the patient is relieved, the case is recorded as a cure by nephrorrhaphy! I believe that the kidney is often stitcht unnecessarily, and sometimes even harmfully."

Also, when considering the question of diagnosis, the possibility of co-existing enteroptosis must ever be recalled, since prolapse of the kidney is often but one of the evidences of Glenard's disease; in which case the prognosis and treatment must be entirely different from that of simple wandering kidney.

PROGNOSIS.

When studying the effects of this displacement clinically, one cannot but agree with the conclusion of Grant, of Melbourne (34), that "abnormal mobility of the kidney, even tho slight, is no mere anatomical curiosity, but a condition of real clinical importance, producing serious disturbances of functions of various organs." Even tho, untreated, the end may not be a fatal one, if the abnormality be markt, and be not properly corrected, chronic invalidism is almost sure to result from the reflex irritation as well as mechanical action of dragging on the vessels and nerves, affecting the motor, sensory and secretory functions of the parts involved. For long wandering kidney has been known to unfavorably affect the nervous system of women—more or less, according to stability; in susceptible individuals terminating in general ill-health, neurasthenia or even melancholia in those morbidly inclined— the constant dragging in one side of the abdomen giving rise to all sorts of conjectures or even delusions. Besides, the final interference with the digestive and eliminative processes leads to an almost hopeless state of ill-health. The dangers of twist, hydronephrosis and degenerations of the displaced organ must also be remembered in considering the future of the untreated person.

Under internal and mechanical treatment a considerable proportion of patients may be rendered fairly comfortable and retored to a satisfactory condition of general health. But as recurrence is certain as soon as the supports are withdrawn, it is always best to advise operative procedures if the symptoms are of important character.

As to what may be anticipated from operative treatment, it may be said that cases treated by suture of the fatty capsule alone give more than 30 per cent of failures, in spite of the most careful after-treatment.

Those in which the fibrous capsule is included in the suture present about 25 per cent of failures.

Those in which the kidney substance is also embraced in the sutures are attended by 13 per cent of failure—Keen's statistics.

Some men have been discouraged by this comparatively large percentage of failures to fix the kidney by suture; a few have therefore abandoned it. Considering the benefits derived in successful cases, mere failure in a few instances should not depress one. We all have failures—the man who never made a failure never made anything. I have a patient upon whom I sutured the kidney four times—with ultimate success; and the woman is well. A doctor's wife in St. Louis had double wandering kidneys—one kidney at the pelvic brim, the other below the umbilicus; I sutured each kidney twice before securing the desired result: cure. Faulty technic is responsible for most failures, suppuration being especially disastrous. With the improved methods now in vogue, non-success will fall below 5 per cent, with no mortality. Failure in my own work has not occurred since the adoption of the more elaborate method herein described.

So far as concerns the relief of nervous and gastric symptoms, it may be said that if they have not existed for too many years there will be immediate improvement, and in a large per cent cure of the nervous disturbances and a gradual change for the better in the gastric ones. In rare instances the stomach resumes its natural position and size within a few months after operation, if the lax abdominal walls be supported by an elastic band. In the worst cases, of long standing, nothing definite can be promist from operation save relief from the dragging sensation and the burden of knowing "there is something loose inside."

In cases associated with general enteroptosis, little can be promist; but since the surgeon is often gratified by the unexpected and decided improvement following nephrorrhaphy, it may be performed justifiably in certain instances where the descent of the kidney appears to be of special import.

(To be concluded.)

*Some years ago, a woman of 27, long treated by several doctors for hysteria, consulted me by the advice of Dr. T. B. Thrush, of Kansas City, who wisht for a nephrorrhaphy. She was hysterical in the extreme, pallid, dyspeptic, constipated, suffering intensely from nausea and vomiting, from a drawing pain in the spine and abdomen and from dysmenorrhea; an invalid, not only incapable of work, but confined to her bed a great part of the time, as that was the only place where she could be even partially comfortable. She would not consent to operation—which we advised. She was therefore fitted with a pad and elastic bandage, which held the kidney fairly well in place during the day, it being taken off at night. Every unpleasant symptom disappeared, her health quickly returned and she resumed her work at the washtub. After a few months the supporter was destroyed. Immediately her symptoms reappeared, rapidly increasing in intensity until she again became a perfect invalid, affected by typical neurasthenia of sexual origin—according to a physician who treated her for a time. Suturing the kidney gave the same relief that the supporter formerly afforded; with a permanent cure of her "hysteria" and "neurasthenia."

CLINICAL REPORT ON A FEW SEVERE CASES OF TRAUMATISM.*

BY THOMAS H. MANLEY, PH. D., M. D., NEW YORK CITY.
Professor of Surgery in the New York School of Clinical Medicine.

Clinical observation and records of cases coming under our immediate care always possess value, not only as illustrating what we can accomplish, but also, alas! pointing to so many instances wherein our best efforts are futile. After about thirty years' experience in the field of medicine, after noting the rise and fall of many much-vaunted remedies and means of relieving disease, after witnessing the enormous growth of biological morbid anatomy and experimental research, I am forced to the conclusion that all our scientific accessories possess less positive and practical value than clinical observations: the study, the analysis and the interpretation of disease as manifested in the living human being.

The few cases herein cited came under my charge in a term of hospital service during the past year (1900); only a few of traumatic character being included in the report.

OPEN FRACTURE OF THE FEMUR.

A man of 25 years had his left thigh violently crusht between two car buffers. He sustained great shock from the collision

*Prepared especially for the "Railway Surgeons' Number."

and loss of blood. The fleshy parts of the thigh were widely torn open and fully a fifth in length of the diaphysis of the femur was reduced to small, disconnected fragments. At first sight it seemed as tho the thigh had sustained mortal damage and must be amputated.

The loose, disconnected fragments were removed, the bleeding points were closed, the parts thoroly cleansed, drainage provided, the limb well swathed in sterile dressings and placed on raised pillows; and the knee flext and leg supported.

The patient was freely stimulated and given one grain of opium. He past a good night.

Passing over a period of the next eight weeks in detail would be tedious and unnecessary. It may be said, briefly, that after free sloughing and discharge of bone fragments the wound healed. The muscles had so contracted as to obliterate the hiatus between the divided fragments and shorten the limb four inches, but as there was not yet consolidation the patient was placed on crutches, the limb being steadied by a plaster cast. After three weeks more osseous union was complete. A cork sole raised the limb up to its level; side by side, the patella of the left leg was just four inches higher than its fellow.

This case was one of great gravity and interest because—

1. The injury was of such pronounced extent.

2. There was no fixt splinting, but rather an easy mechanical support.

3. Retraction of the limb occurred sufficiently to close in the osseous breach by muscular shortening.

We may often take advantage of muscular shortening after loss of bone substance with most happy effects in damage or disease of the digital shafts and the bones of the leg.

SPINAL FRACTURE.

A. M., 46 years old, driver, was brought in by ambulance after being caught between the top of his van and the structures of a bridge under which he was passing. There was complete palsy from the nipple-line downward. Over the fourth dorsal vertebra there was a projection and excess of motion. Control of sphincters was lost. He was placed on a water-bed, with spine moderately extended.

On the second day after admission signs of ascending spinal meningitis developt, the temperature suddenly went up to 105.5, and the pulse became rapid and thready. Simultaneously the respiration became embarrast—the bronchi filling with secretions which he could not expel. A deep, cyanotic flush followed—asphyxia was deepening. Death came on the morning of the fifth day.

One not thoroly familiar with the narrow limitations of surgical procedure in rachidian traumatisms might assume that an immediate laminectomy should have been performed on this man. But, as the autopsy showed, it could have accomplisht no good, as there were found fractures thru the bodies of both the fourth and fifth dorsal vertebrae—tho there was only very slight displacement. The spinal column had been forcibly "jack-knifed" (i. e., sharply flext) so that the spinal marrow at point of fracture was reduced to a pulp and all the investments contused and lacerated.

Thoro and extensive experimental study of these traumatisms of the spine in anesthetized animals, and the treatment of more than 150 cases in the human being (in some of the latter laminectomy being done), force the conclusion on me that radical interference in grave spinal injury promises little. When the special effects of the injury are intrinsic and the cord is disorganized, an incision will avail nothing.

Where the cord escapes—when the lesion is extrinsic—the spinal fracture has been but little displaced; and Nature, unaided by operation, will effect a restitutio ad integram. Rest, with orthopedic supports, may be called for, for a varying period of time, in all severe cases.

ABSCESS OF LIVER FOLLOWING INJURY.

Patient was a man 32 years old. Six days before admission to the hospital he was injured in the right side by a fall of about ten feet. He had no special trouble until about one week later, when he was seized with a chill and severe pains in his right side. The right side of the thorax became distended, with loss of respiratory murmur and flatness on percussion. An aspirating needle sent in thru the seventh intercostal space was immediately filled with thick pus. He was therefore turned over to the surgical department for Estlaender's operation.

On resection of four inches of the seventh and eighth ribs at their convexities, much to our astonishment a healthy pleura came into view! Upon incision of this the comprest edge of healthy lung came into view. The pleural sac was empty. The diaphragm was pusht high into the right thoracic cavity.

Now, by again introducing the exploring needle, a well of pus in the liver-substance was tapt. By the side of the needle a broad scalpel was introduced which, after traversing an inch in thickness of liver-tissue, opened up a vast abscess. The abscess cavity was gauze-packt, the chest wound partly closed and dressings applied. The patient died next day.

During this term of service I saw three abscesses of hypatic origin, all of which presented very obscure symptoms. In two the symptoms were conspicuously pleural. One case occurred in a young man who came in for radical cure of hernia. After operation the wound healed well, and he was about to be dismist, when septic symptoms developt: his temperature ran up and he began to waste. No definite diagnosis could be made, tho several consultations were held, and tho various tests were tried—in vain; Death alone revealed the secret! On autopsy, the whole liver was found to be but a great bag of pus—but a thin shell of the parenchyma of the liver remaining. In another case all the primary symptoms were pleural, but hepatic abscess was suspected and opened early, his life being thus saved.

Dieulafoy has given us the best picture of hepatic and subphrenic abscess. He points out that they are not uncommon after right-sided pleurisy, and often appendicitis, and notes that in septic cases of the latter disease failure to recognize and properly treat them costs many a life.

MULTIPLE FRACTURE—NO PRIMARY SPLINTING.

G. B., a muscular, vigorous man, was projected from a scaffold forty feet from the ground. As he past thru space he was caught on a rail and struck the ground. He was in great shock on entering the hospital. It was found he had sustained six fractures: two of the ribs, one of the left femur near the knee, one of the tibia and fibula of the right leg, and one of the left olecranon process. The fractured ribs were treated by the circular bands, the olecranon by extending the forearm, and the fracture of the femur and leg were simply pillowed for the first two weeks, i. e., the knee was flext on either side, the flexor muscles fully relaxt—all resting on two pillows. At the end of two weeks, when partial union had begun, plaster-of-Paris light supports were applied. In all these fractures there had been but little displacement of the fragments. Union and repair were quite perfect at the end of six months.

The above was one of a very numerous class in which splints must be ruled out (except to hypnotize the patient), as they actually interfere with and retard the repair of the limb. Champonierre uses no splint in simple, nondisplaced fracture; and why on earth (except as a matter of blind obedience to tradition) this practice of splinting everything is continued is inconceivable. Let the practitioner treat fractures on rational principles; when they are not complicated let the rule be: "No displacement, no splint;" and who then will splint a well-impacted fracture at the hip-joint, or a Colles'?

MAN-BITE.

The patient, a middle-aged male, in a drunken brawl, was bitten on the nose and chin by another man, and his right ear was nearly torn off. The ear was carefully sutured and the other wounds treated by simple measures. Recovery was rapid and complete.

I have seen bites of various characters: from the cow, the horse, the rat, the cat and the dog; and have never noted anything virulent in them, excepting in case of rabies—in one instance following a dog-bite—and one fatality immediately after a bite on the hand by a rattlesnake, mortal gangrene setting in and killing the victim (a trainer of these reptiles) in eighteen hours. The worst mishap from a human bite was a case in which a woman gave a man's penis a clinch near the root; the most intense engorgement following, with signs of impending gangrene, but the organ was finally preserved.

TRAUMATIC RUPTURE OF THE JEJUNUM.

The patient, a male 27 years old, in a fall downstairs while intoxicated, struck his abdomen with great force against the top of a stair-post. He was brought to the hospital thirty-six hours later, at which time he had all of the symptoms of peritonitis of grave type. On abdominal section the peritoneal cavity was found full of gas and fetid fluid. As the incision was made high, the jejunum rolled out. Here, six inches from the duodenal junction, a perforation two and a half inches long was discovered. This was closed by a continued suture and buried with Lembert stitches, the peritoneal cavity well irrigated and drained. Patient sank the same night.

This case no doubt would have done well by an early laparotomy, as there had been no large blood loss and mortal changes came only from septic infection.

COMPLICATED FRACTURE OF LEG.

The patient, a male of 38, had his left leg crusht by being run over by the two wheels of the forward part of a trolley-car, the tibia and fibula being badly shattered in the lower thirds. I

saw him one hour after the injury, when he had lost a large quantity of blood and was in deep collapse. Strange to say, the circulation in the foot of the damaged limb was intact, as was also nerve-function. It was therefore decided to make a most persevering effort to save the limb. So, after the bleeding was stauncht by the use of ligatures and loose, projecting fragments of bone were removed, all was embalmed in antiseptic dry dressings, two lateral supporting-splints applied, the knee flext and well pillowed. He was well stimulated, and a half grain of opium given every six hours. He past a comfortable night. Four days later the dressings were changed under an anesthetic and three inches of the shattered tibia and fibula removed. It was now found that there was but a very small area of skin destroyed, but the soft parts underneath were badly disorganized. The ends of the tibia were wired together and the limb again adjusted. Shortly after this secondary osteoplastic procedure there was large sero-purulent discharges, requiring repeated and copious irrigations. Things lookt very unpromising. On the tenth day another critical examination was made, when it was discovered that the distal fragment of the tibia was shattered down into the ankle-joint, and was quite necrotic. All hope of saving the limb having now vanisht, it was amputated, and the patient made a rapid recovery.

The above case belongs to that common class of serious injuries now properly designated as "open fracture." It was my hope that the distal fragments were whole, and as the ankle-joint appeared to have escaped, we cared nothing for the degree of shortening, provided only that we had effective osseous consolidation. Muscular shortening would have amply obliterated the dead-space and obviated the necessity of osseous transplantation.

FRACTURE OF THE SKULL.

Patient, a boy nine years old, was struck on the side of the head by a swiftly-moving trolley-car. On exposure, by incision, of the outer cranial wall a cylindrical fracture, nondisplaced, was seen. The wound was closed, except at the ends (for drainage). Recovery was rapid.

In this case, altho the brain must have suffered, there were no markt cerebral disturbances.

In connection with cerebral fractures, the following will prove of some avail:

1. In cranial traumatism, cerebral localization is very often indefinite.
2. In deprest fractures, the chisel and mallet should entirely displace the trephine.
3. Subcutaneous cocainization will largely set aside pulmonary anesthetics in most skull injuries.
4. With sterile sutures in a clean scalp-wound, we may, as a rule, close the wound.
5. Mustard powder is an excellent and effective antiseptic for scalp-wounds.
6. Operative surgery is comparatively impotent in all grave intracranial injuries—especially of the brain.

STRANGULATED INGUINAL HERNIA.

Patient, a male 27 years old, had hernia for twelve years. On evening of entrance to hospital, while raising a case of dry goods, he felt the rupture come down in great volume under the truss. He tried to reduce it but failed, and then called a physician, who patiently used taxis without success. As night came on symptoms of strangulation set in, and he was sent to hospital. On examination the scrotum showed signs of forcible pressure, being enormously swollen, edematous and discolored in patches. He thought he felt somewhat better on entering the hospital, and requested delay in operating until next day. He was given a quarter-grain of morphine hypodermically and placed in bed with the hips well raised. He slept all night. In the morning the hernial tumor had vanisht—it had undergone spontaneous reduction!

Spontaneous reduction of even strangulated hernia we will sometimes see. Tranquility and repose dispose to muscular relaxation, while the steady, unremitting tension of the intestinal muscle draws the bowel up as soon as the tendinous grip is overcome at the ring. All cases of strangulated bowel tend to reduction in the early stages, when there is no torsion of the bowel, nor adhesions. Nevertheless, it should be the invariable rule to urge operation in all these cases when the patient's general condition will permit, as by it we not only effect prompt reduction without the dangers of violent taxis, but also superadd the operation for radical cure.

DORSAL DISLOCATION AT THE HIP-JOINT.

Patient, 43, carpenter, was injured by being caught under a pile of falling lumber. The head of the femur had been forced completely out of the socket and rested on the dorsum illii; left side. The knee was flext, the leg inverted and the whole limb adducted and shortened. Patient was placed on his back on a mattress resting on the floor. The leg was then employed as a lever, the thigh lifted, flext, adducted, rotated and extended. The head of femur slipt into its place with an audible snap.

I am acquainted with no dislocation which offers better results after reduction than those at the hip-joint; nor have I seen a case which resisted reduction there, tho I have seen quite a few at the shoulder. The capsule is rarely ruptured or torn off. Mischief rather comes from a mistaken diagnosis. Some years ago I was called to see the case of a woman injured by a fall on the hip. She was told that she had an "intracapsular fracture" and must keep her bed for several weeks. She was a large, fleshy woman—a bad build for thigh-fracture. A critical examination showed the case to be one of dorsal luxation on the illium. In this case, as in the one above recorded, with no other aid than a clothes-line traction, reduction was easily effected and ten days later the poor woman was about with full use of the limb.

PENETRATING GUNSHOT-WOUND OF THORAX, LIVER AND LEFT KIDNEY.

Patient, 23 years old, at 3 o'clock in the afternoon, having eaten nothing since breakfast, shot himself with suicidal intent. He was seen by me one hour after the wound was inflicted. He was in deep shock and evidently suffering from internal hemorrhage. He had vomited mucus tinged with blood. The ball entered at the costo-sternal junction of the ninth rib of the left side, past across the body and emerged thru the seventh intercostal space four inches from the spine, where it lay under the integument. He was immediately prepared for laparotomy. The abdomen was opened from the xiphoid cartilage to the navel scar, and the stomach sought for. The abdomen was full of liquid blood, which seemed to well up from under the pancreas. Double perforation of the stomach was discovered, both anterior and posterior walls having been pierced. The openings were quickly closed, the abdominal cavity cleansed and the source of hemorrhage sought; but signs of impending death having set in suddenly, we had to be content to desist after rapidly tamponing. Large and repeated intravenous injections of artificial serum were employed, but without effect—our patient sinking eight hours later.

On autopsy it was found that the missile had past thru the left lobe of the liver and had torn thru the upper pole of the kidney. The source of the hemorrhage was renal.

The above case suggests many speculations; and at the outset we may inquire if our course of action was most conducive to our patient's welfare. It is now my conviction that it was not, for operations on the abdomen after penetrating gunshot-wounds are attended with an enormous mortality. Here we had no leakage of gastric contents, as the stomach was empty; moreover, these bullet-holes are immediately filled in by the everted, thick mucous membrane of the digestive tract, which is always very thick in the living body.

Some years ago Prof. L. A. Stimpson, of New York, after a huge statistical study of the relative mortality from the operative and the nonoperative cases of penetrating wounds of the abdomen, was forced to concede the greater death-rate under the scalpel. Reclus, of Paris, has arrived at the same conclusion. Laparotomy here is a very formidable task; the only possible means of saving life in some rare cases; and again in a great number removing all possible hope of recovery. Col. Nicholas Senn, some years ago, gave us an interesting illustrated brochure on "Abdominal Surgery on the Battlefield;" but when he came face to face with the actual condition—not a theory—on the moors and marshes of Cuba, he learned there is no such surgery: every patient "laparotomized" for gunshot-wounds died, while scores that were left alone recovered! And then we have the experiences of McCormick, Treves and Stokes in the Transvaal. These distinguisht authors have chronicled numerous cases wherein single and multiple perforations were produced by the Mauser missiles, recovery quite generally following palliative treatment.

Opium, alcoholic stimulants, rest and rectal alimentation must be our sheet-anchor here.

As to intravenous injections, so highly lauded of late, in profound exsanguination, I must confess that I have never seen a case in any manner aided by them which might not have done equally well or better if the fluids had been given by the rectum or stomach. One who has lost much blood always craves liquids, and usually bears them well. The warm salines bring up the pulse and distend the arteries, but they overstrain an enfeebled heart, and their effects are often only very transient.

Dr. Frank Martin, of Baltimore, recently reported to the Clinical Society of Maryland a case of nephrectomy under spinal anesthesia. The only unpleasant after-effect was a very decided headache, which disappeared after three or four days.

AMPUTATIONS BELOW THE KNEE.*

BY EDWARD WALLACE LEE, M. D., ST. LOUIS, MO.,

Consulting Surgeon to St. Louis City and Female Hospitals; Professor of Surgery in John A. Creighton Medical College, Omaha; Surgeon to St. Joseph Hospital, Douglas County Hospital, B. & M. R. R., etc.

"An amputation is the complete separation of any projecting organ or member from the body. While the term may be applied to operations in which the breast, penis, scrotum, cervix uteri, etc., are cut away, by long usage and common consent it is now restricted to removal of the extremities or their subdivisions."—Wyeth.

John A. Wyeth has, perhaps more than any other surgeon, by his teachings placed the subject of amputations on a correct and scientific basis, and his teachings and writings on this subject will ever remain standard and become classic.

Altho our present discussion is on amputations below the knee, I cannot refrain from making reference to the Wyeth pins in amputations at the shoulder and hip. By the use of these pins I have made six hip-joint amputations; four cases recovered; with the two that died, death could in no way be attributed to the operative technic.

There are, generally speaking, three kinds of amputations: (1) Accidental—where the limb is torn or crusht off by machinery; (2) natural—due to pathological changes, as senile gangrene, frostbite, etc (and at times it is wonderful to see the beautiful results of nature's amputation); (3) surgical—with which we are most concerned.

The statement is often made that "anybody can cut off a leg." This is undoubtedly true, as we see it demonstrated in accidental amputations. But to make an amputation that will give the unfortunate victim a useful and painless stump requires a good knowledge of general surgery, anatomy, physiology and mechanics. I speak knowingly on this subject, as I have been called upon frequently to make reamputation on account of useless stumps. A useless stump makes a cripple of the individual. On the other hand, if the surgeon makes the proper stump, the prosthetic surgeon can so adjust an artificial limb that it will, in many cases, be difficult (by the patient's walk) to detect the substitute. Gross said, over thirty years ago, "There is reason to believe that the inconveniences and suffering occasioned by the use of artificial limbs are more frequently attributable to the misconduct of the surgeon than to want of skill on the part of the manufacturer of the substitute."

"The requirements of a good stump are: Proper protection for the end of the bone, with a non-adherent, integumentary flap, in which the cicatrix is located to one side of the bone-ending; sufficient length to provide leverage with which to swing an artificial limb, and freedom from encicatrized nerve-endings. These principles are of vital importance, and a lack of the proper understanding of them has caused many an otherwise brilliant surgeon to leave an occasional patient unnecessarily crippled."—Truax: Mechanics of Surgery.

"After an amputation has been decided upon, whether for the purpose of protecting life from impending danger, to remove a cause of suffering or relieve a source of inconvenience, the first essential is to select that point for the operation which will afford the greatest possible use of the stump to the patient. In performing an amputation that will best serve the interests of the patient, all superfluous and useless bone and tissue should be removed, that they may be replaced by artificial material that will be of service and value. A stump that will admit of pressure on the end of the bone is nearly always preferable, provided the patient secures the services of an expert prosthetician."—Truax.—Not that all stumps should be expected to stand pressure, but they are better if they can. We are not called to amputate as frequently as we formerly were. This is due, in part, to a more careful, scientific technic in mechanics, and the better discipline of laboring men; also owing to the great advantages gained by a thoro study of surgical pathology, aseptic and antiseptic surgery, we are now able to remove those diseased conditions by resection and exsection that formerly required amputation. It would be a very badly diseased knee-joint, indeed, that would require an amputation of the thigh to-day. In the preantiseptic days amputation was necessary to save life in many kinds of cases that can to-day be treated by scientific, antiseptic methods, and both life and limb preserved. Not more than twenty years ago no attempt would be made to preserve a limb that had sustained a compound fracture, especially if the fracture was complicated with injury to the joint; to-day (God bless Lister!) it is different.

*Read before the St. Louis Academy of Medical and Surgical Sciences.

We hear a great deal to-day regarding "conservatism" and "conservative surgery" (as applied to preserving injured or diseased portions of the body). As our knowledge becomes more exact we will drop the use of the word "conservatism," as applied to surgery, and depend on scientific surgery; for to say: "We will be conservative now," is simply expressing a doubt as to the result that may be obtained. For example, it often requires the best judgment of a surgeon to say whether or not he will amputate an injured foot. One should not be "conservative" to the extent of saying: "I will try to save this foot, but if so and so occurs, I will have to cut it off;" but one should have his knowledge so exact that from the condition, at is presents itself, he will know whether or not it is possible to save the member, and if it can be saved, what kind of a stump can be obtained. This so-called "conservative surgery" often places the patient's life in great danger. It necessitates a long confinement in bed; danger of general sepsis; sloughing, granulating wounds, and sometimes an irritable cicatrix and a useless, painful stump, requiring later amputation, not only for the application of an artificial limb, but to relieve a constant source of painful irritation. I admit that many useless amputations have been made, where the members could have been saved, but that was due to the ignorance of the surgeon and not to a deficiency in the principles of scientific surgery.

Before we resort to measures tending to save a member, we must picture in our minds just how the result is going to look: how much deformity is going to exist; of how much use the preserved tissue will be; and what irritation it may or may not cause. I have seen toes saved that lookt very well so long as the patient was in bed, but had to be amputated before the patient could put on boots and resume work. As most of these injuries occur among the laboring classes, and as a laboring man's time is his capital, we should use all our best efforts and judgment to restore his working functions as perfectly and rapidly as possible, and not ask him to become a martyr to so-called conservative surgery.

Amputations are made either in continuity (that is, thru the shaft of the bone) or contiguity (thru the articulation). As a general thing, there is no objection of making an amputation in contiguity, providing the articulating surface is in healthy condition. In fact, in amputations of the knee-joint there is really no need of sawing off the condyles of the femur, as such a section exposes a broad surface of cancellous tissue to the danger of absorbtion of septic matter, should inflammation occur.

'In amputations following accident, the period in which the operation may be performed is divided into the immediate, primary and secondary. Here again is the judgment of the surgeon called into serious consideration. Of course, in minor injuries requiring amputation there can be no objection to immediate operation. What I mean by "immediate operation" is one performed at the time of injury or within three or four hours afterwards, and during the prevalence of shock. According to Wyeth, primary operation is after reaction from shock and before the period of inflammation—secondary after a period of twenty-four hours, and during prevalence of inflammation. My own experience favors immediate operation, as the administration of a large dose of morphine (one-fourth grain), the administration of the anesthetic, the removal of the crusht member with its irritating fragments of bone, crusht and bruised nerves, bleeding vessels, etc., removes to a great extent the cause of shock and places the patient in a position to recover from that "secondary shock" which is more profound than the primary. Of course, if there was to too profound primary shock, I would wait for reaction; but that is a condition that too often fails to come, as it is a hard matter to recover from the shock of an injury with a mutilated member almost taking the life out with every breath the poor victim draws. I have had a very large experience in this direction, and have never regretted having made an immediate amputation.

The danger of death after amputation depends largely on the character and location of the line of section. As to the line of section, there are practically no exceptions to the law that the rate of mortality is proportionate to the diameter of the part divided and the proximity of the section to the trunk. Therefore the amputation at the hip-joint is the most dangerous of all.

It often requires the best judgment of the surgeon to say where the line of section should be made. Especially is this true when amputation is indicated after injury. I have seen a foot and leg injured by the passage over it of a car-wheel, resulting in a comminuted fracture, pulpefying of the muscular tissues, nerves and vascular tissues; and still the integument remained intact. Of course, the first general law governing amputation is that no more of the member should be cut away than is absolutely essential to the safety of the patient and the ability to form a useful stump; but if error is to be made, it is better to

be one on the right side of perfect tissue than it is to try to make a stump out of tissue that has been subjected to severe trauma, for it is here that we have sloughing, gangrene, etc., requiring re-amputation. Following trauma, tissue that is below normal temperature, that is, pulseless, that will not react by application of heat, had better be removed than to be made into a stump. In disease, tissue that is inflamed should not go into the formation of a stump, for there is danger of local disturbances and general sepsis. To make a perfect stump requires perfect tissue.

PREPARATIONS PRIOR TO AMPUTATIONS.

In amputating for disease, elaborate preparations can be made; for injury, this cannot always be done in justice to the patient.

Chloroform anesthesia is almost always indicated. In some of the minor amputations local cocaine anesthesia will answer very well. I have never resorted to spinal anesthesia in amputations following injury, nor do I intend to, for I believe that the general anesthesia has a great tendency to prevent and mitigate shock.

After injury, as little examining and manipulating should be resorted to as possible, for this all teads to increase shock.

It has been my practice in making immediate amputations to work as rapidly as possible.

The crusht portion of the member should be wrapt in towels or sheets wrung out of 1 to 1000 bichloride of mercury solution. It is not necessary to remove boots or clothing, for this manipulation, even under anesthesia, adds to the shock. The limb should be elevated above the plane of the body, the crusht portion treated antiseptically, and the field of section made aseptic. After the member has been elevated for a few minutes, the Esmarch bandage can be applied at a convenient distance above the line of section and allowed to remain there until all vessels are ligated.

AMPUTATION OF THE TOES.

The long plantar flap is always preferable in these operations, chiefly because it brings the cicatrix on top, and away from pressure. This rule should be followed in dealing with a single toe; and also when it is required to remove all the toes. All the toes can be removed by one long plantar and a short dorsal flap. It is here that it is necessary to get the proper adjustment of flap, so that one can make a stump that will stand a certain degree of pressure and not have an irritable cicatrix.

The phalanges may be removed in continuity or contiguity, according to the amount and character of tissue preserved to form the flap.

Where the loss of tissue requires an amputation behind the metatarso-phalangeal articulation, section of one, or even all, of the metatarsal bones should be effected rather than to unnecessarily sacrifice any portion of the foot by disarticulation at the tarso-metatarsal joint. Amputation thru the entire metatarsus should be made with the long plantar and short dorsal flap, so as to have no pressure on the cicatrix. These sections can also be made in continuity or contiguity, the line always as near the anterior extremity as possible; but if it falls within three-fourths of an inch from the tarso-metatarsal joint, a disarticulation should be made at this point, as it gives a more perfect contour to the foot.

In making these sections about the foot every precaution should be made to make them as bloodless as possible. This can be accomplisht by raising the foot high above the plane of the body, and after gravity has thoroly blancht the tissues, to apply the Esmarch bandage at some convenient point above the seat of operation. This bloodless operation is absolutely essential so that a perfect view of the parts can be had at all times, thereby avoiding unnecessary cutting of tendons, which one must always try to preserve in order to control the normal contour of the stump; cutting of the tendon of tibialis anticus at its insertion in the internal cuneiform may produce a condition as found in talipes equinas, and requiring section of the tendo Achillis to overcome. This is the objection to the operation of Hay, as in it one cuts away the anterior portion of the internal cuneiform, destroying the attachment of the tibialis anticus. By careful dissection beautiful and serviceable dorsal and plantar flaps can be made. Care should be taken to avoid vessels and veins that are included in the stump, and the flaps should have a slight anterior convexity.

FOOT AMPUTATIONS.

From the tarso-metatarsal articulation to the lower end of the tibia many amputations can be made which will give most serviceable stumps. It is to these classical operations that I would invite special attention. A thoro study of them should be made, so that their advantages and disadvantages can be understood, whereby one can adopt or avoid, as may be deemed best. In surgery it is well to have a knowledge of certain methods that one does not intend to use, for then he is in a position to avoid them. It is in these operations about the foot that especially require a sufficient and perfectly adjusted flap, and a thoro consideration must be given the amount of serviceable flap-tissue before deciding on the line of bone section. These various operations (e. g., Lisfranc, Hey, Chopart, Syme and Pirogoff, and their modifications) all have their advantages. A description of them here is wholly unnecessary, as they are described in detail in most text-books; especially in Wyeth's is the description complete.

The old and ideal amputation at the ankle-joint, the tibio-tarsal, when properly done, is that of Syme. I say "when properly done," for too often is the plantar incision made so far backward that the proper blood-supply is cut off from the posterior flap, and sloughing is the result. Syme called particular attention to this point, but its importance has not been appreciated, and therefore the operation has, in the hands of many surgeons, fallen into disrepute. Another danger in the operation is the "button-holing" of the posterior flap as the dissection is being made over the inferior and posterior aspect of the os calcis. This operation is especially indicated when it is necessary to remove the foot together with the astragalus and articulating surfaces of the tibia and fibula. There are many modifications of Syme's operation (such as Pirogoff, LeFort, Gunther and others), all of which have their advantages under certain conditions. The object to be attained is to secure a cushion-like stump that will stand pressure, and a cicatrix removed from source of irritation; and this can be accomplisht by Syme's operation, if the work has been carried out as advised by Syme.

LEG AMPUTATIONS.

There are many operations described for leg amputations, such as Stephen Smith, Teal, the rectangular and the long-anterior flaps, the long fibular and short tibial flaps, etc. After Syme's ankle-joint operation, section can be made in any portion of the leg where the soft parts are in condition to form the required flap. The operation that I have most practist is a short anterior flap, including all tissue down to the periosteum; a long posterior flap, including integument down to deep fascia; this flap is dissected back far enough to form a cuff which, when brought forward, will cover the end of the bone and extend over and backward at least one and one-half inches to meet the anterior portion of the anterior flap; both these flaps can have an anterior convexity. After these flaps have extended back sufficiently, a gauze retractor is applied and drawn snugly backward, then a circular incision is made thru the muscular tissue down to the bone. The muscular tissue is then dissected from the periosteum and retracted at least an inch back of the line of bone section, the interosseous structures are then divided, the periosteum reflected slightly backward and the tibia divided. The leg is then carried slightly outward and the fibula divided at least two inches above the tibial section. (If the tibial section is within three inches of its articulation with the femur, complete removal of the fibula is preferred.) When the line of amputation approaches nearer than three inches from the upper articulating surface of the tibia, a complete disarticulation at the knee should be preferred. After the bone section has been made, the spine of the tibia is slightly trimmed down, so as to prevent its sharp edge from injuring the flap, but it is not necessary to cut it off at an angle of 45 degrees, as is often advised. All vessels having been attended to and hemorrhage controlled by hot wet-packs, the flaps are now adjusted. They may require a little trimming.

The flap that I have described will bring the line of sutures at least one inch back of the bone-end in front, and over two-thirds the width of the limb on the side.

The drainage is placed at the extreme limit of the lateral incisions, for the limb is to be placed in an elevated position, which then brings the drainage in the most dependent portion of the wound.

Deep silkworm-gut sutures are used, going back into the muscular tissues and drawn tight enough to close the space between skin-flap and the muscular ends; thus preventing the formation of pockets. Superficial sutures of catgut are used to absolutely close the wound. Moist gauze is applied in the form of a cushion, which lifts up the posterior flap, and any oozing which takes place is taken care of by the drains, the drain on one side extending forward to the anterior portion of the stump; on the other, the drain is in the posterior portion of the stump. Gauze is then applied over the stump and a bandage applied which will support the posterior part of the stump, so that no pressure is brought on the anterior portion.

This is practically the method I have adopted in over seventy amputations below the knee, and I have found it very satisfactory. This flap is what might be called the "solid flap," as it contains integument and fascia, and the end of the bone is covered by muscle. I do not find it necessary to make the long periosteal cuff to cover the bone, as advised by some; the periosteum is only reflected back sufficiently to keep the saw from bruising it. Stumps formed by this method, as I have described it, generally

wear an artificial limb with comfort. In forming such a stump, care must be taken to see that all tendon-ends and nerve-ends are drawn out and cut off, so that they contract deeply into the muscular tissue, and there they are safe from irritation. Much care and attention should be given stumps, after healing is complete, before they are in a condition for the artificial limb.

TRAUMATIC GANGRENE.*

BY J. B. MURFREE, M. D., MURFREESBORO, TENN.,
Professor of Surgery in the University of the South.

There are quite a number of different varieties of gangrene, but they may all be included under the two general terms of moist and dry gangrene. Gangrene is caused by either an interference (a diminution or cessation) of the arterial blood-supply, or to an obstruction in the venous system which prevents the return of the blood, or to a stagnation of the blood in the capillary vessels. It sometimes, however, is produced by the direct action of irritants or chemical caustics upon the cells, without any interference with the circulation of the blood directly. The essential cause of gangrene is a disturbance or arrest of the nutrition of the tissues, in part or in whole, which is due to an obstruction to the circulation of the blood in the arteries, veins or capillaries. The causes of these obstructions are many and varied. When the gangrene is due to an arrest of the circulation of the blood in an artery it is usually of the dry variety, while an interruption or obstruction to the outflow of the venous current produces a moist form.

Traumatic gangrene is the result of a traumatism—an injury of the blood-vessels, either arterial or venous, which directly or remotely disturbs the nutrition of the tissues by an interference with the circulation of the blood thru the part. If the injury is in an artery, the result will be a dry gangrene, whereas if the disturbance is in a vein, it will be a moist form. Extensive injuries which cause large and severe contusions or lacerations of the soft tissues, or violent injuries to the bones where fragments injure the blood-vessels, produce a moist gangrene, which is also recognized as traumatic. In this event the gangrene may be due to a direct injury of a vein, or the resulting active inflammation may produce such a turgescence and congestion that the blood stasis is so great as to give rise to death of the part. If from an injury to a blood-vessel or from a severe acute inflammation gangrene results, and the wounded area becomes infected with microorganisms, not only does death of the part primarily occur, but the gangrene extends sometimes with frightful rapidity, putrefaction sets in, and thru the agency of the infecting bacteria spreads extensively, producing what is denominated "spreading traumatic gangrene."

The symptoms of traumatic gangrene are those of gangrene in general, modified by the cause and the seat of the injury. The prodromic symptoms are aching pains in the limb, with slight numbness. The pain increases in severity; at first it is intermittent, but its frequency increases, while soon it becomes almost continuous. The muscles become rigid and their power of contracting is lessened. These symptoms may pass off with rest, but will return with the slightest exertion. As the disease advances there is a coldness of the skin, a numbness and tingling in the extremity and the muscles. The part remote from the seat of injury becomes congested and is gradually discolored, assuming a dark purple hue, which eventually turns black, and it is either dry or moist. If moist, watery blisters form, which soon break, exuding a thin, offensive fluid and revealing the dead tissue beneath. In dry gangrene the dead part becomes hard and shriveled, emitting but little if any odor. The disease spreads slowly, gradually extending up the limb, the invaded tissue undergoing the same transformation. There is usually a slight rise of temperature, but the fever is low unless there is a large area of tissue involved in the diseased action, when there will very likely be more or less of a septic infection which will produce a high temperature. At first there is an absence of pain, or, if any, but little, but as the disease progresses, the pain soon becomes very intense and annoying and constitutes a prominent symptom. The patient is unable to sleep on account of the pain, while there is a loss of appetite, and as a result he becomes worn out and possibly may die from exhaustion. In traumatic gangrene there is usually no well markt line of demarkation, yet there is a well noted distinction between the diseased and healthy tissue.

The diagnosis is usually not difficult, the symptoms generally being well markt, and on ocular inspection the disease speaks for itself.

*Abstract of paper read before the Southern Surgical and Gynecological Association.

The treatment of traumatic gangrene locally consists in a careful and thoro removal of all the dead tissues, followed by a complete sterilization of the parts by frequent and copious antiseptic irrigations. The general treatment must be supporting and sustaining by the free administration of tonics, stimulants and nutrients, with an anodyne when needed. In traumatic gangrene involving the extremities, as soon as the gangrenous process is well establisht, if the patient's constitutional condition is fair, it is not wise to wait for lines of demarkation and of separation to form, but to amputate the part thru healthy tissue, and thus avoid the risk of incurring septic infection. This is now a well establisht principle in surgery, but in order to be successful in the application of the principle, we must be sure that the amputation is done thru healthy tissue, which can only be assured by going far above the seat of injury.

ILLUSTRATIVE CASE.

Addie H., female, colored, aged 20 years, married and the mother of two children, robust and healthy, with well developt muscles, was accidentally shot on August 5, 1900. The gun was an ordinary shotgun, loaded with (No. 8) bird shot, and was discharged within three or four feet of where she was standing. The entire load of shot struck the anterior part of the left thigh and entered the tissues en masse, passing directly backward, tearing its way thru the skin, muscles, vessels and connective tissue to the femur, by which it was deflected, and lodged on the inner side of the thigh in the vicinity of the femoral vessels. The hemorrhage was quite free. I saw her about an hour after the receipt of the injury. The external wound was large and extended back to the bone, and from there to the inner side of the thigh, but upon examination I did not discover any injury to either the femoral artery or vein. All foreign substances were carefully removed from the wound, except the shot, which were so numerous and so completely buried in the tissues that they could not have been removed without doing great violence to the parts. The wound was situated anteriorly, about the junction of the upper and middle part of thigh. The hemorrhage, which was quite profuse, was readily arrested with hot water, after which the wound was rendered aseptic by irrigation with a solution of bichloride of mercury, 1 to 2000, which was washt away with hot sterilized water. To prevent a recurrence of hemorrhage, the wound was packt with iodoform gauze, and then drest aseptically, and the patient put to bed. In a few hours reaction came on and was full and permanent. The wound was drest once daily, being well irrigated with a bichloride solution, 1 to 2000, followed by sterilized water. The dead tissues in the tract of the wound slought and readily came away, followed by healthy granulations. The wound being on the anterior aspect of the thigh and extending directly backwards to the bone (which was still covered with the periosteum), looked precisely like a hole that had been bored with a two-inch auger thru the flesh down to the bone. There was but little rise of temperature after reaction was establisht, the pulse was regular, yet a little weak and frequent. For nine days after the injury the patient did well, was cheerful, with a good appetite and regularity of secretions, while the wound was promptly filling up with healthy granulating tissue. About this time she complained of a severe pain on the under side of the limb in the popliteal space, extending downward and to the inner side of the leg in the direction of the anterior tibial artery. The pain at first was not severe, but each day it became more and more intense, and extended upon the dorsum of the foot to the great toe and the adjoining one. In a few days the pain became excruciating, so much so as to interfere with sleep, being somewhat paroxysmal in character and often causing her to scream out, as if in great agony. The pain continued for several days along the leg and the dorsum of the foot, but was worst in the first and second toes, and became finally localized there. After three or four days there was a bluish discoloration of the first and second toes, which gradually extended to the other toes, and meanwhile the pain continued. One week after the pain became localized in the great toe and the parts were discolored the gangrene had extended to the other toes and partly upon the dorsum and sole of the foot, and there was a clear and well markt distinction between the gangrenous parts and the healthy tissue. True, there was no distinct and well characterized "line of demarkation" and separation, but the extent of the dead tissue was regular and clearly observed. Thinking that the gangrene had localized itself in the toes and part of the foot, and that above that point the tissues were healthy, on September 2, four weeks after the receipt of the wound, I amputated the foot at the tarso-metatarsal joint, hoping that I was well above and away from the diseased part, and that the circulation above this point was uninterrupted. In this I was mistaken, for in twenty-four hours after the removal of the foot disintegration of the tissues began in the flaps, and soon the gangrene extended above the ankle. Then

I fully realized that there was a thrombosis of the femoral artery instead of an embolism of the vessels of the toes. And so, four days later, I amputated the thigh at the junction of the upper and middle third, as the only means of saving her life. The patient was greatly exhausted at the time of the operation by the long continuance of the gangrenous process and by the shock from the recent amputation of the foot. At the beginning of the operation she was buoyed up by a hypodermatic injection of morphine and strychnine, the strychnine being repeated during the amputation, and under the use of an Esmarch bandage, there was but little loss of blood. Yet in spite of these precautions she was very greatly deprest during the operation, and after its completion reaction was tardy; so much so that I had serious apprehensions of her dying from the shock. As soon, however, as the stump was drest (which was quickly done), she was put to bed and artificial heat applied to her body and extremities, after which normal saline solution was administered every few hours, the first few times subcutaneously under each breast and in each flank, afterwards per rectum. She reacted in less than twenty-four hours and made an uninterrupted recovery.

Examination of the amputated leg showed thrombosis of the femoral artery at point of wound; amputation therefore ought to have been made at the site of injury instead of the tarso-metatarsal junction.

This case proves conclusively the rule that in traumatic gangrene amputation should be done far above the gangrenous area.

"BLOOD WASHING" IN SEPTICEMIA.*

BY ROBERT T. MORRIS, M. D., NEW YORK CITY,
Professor of Surgery in the New York Post-Graduate Medical School.

This next patient is the young man whom you saw in the operating room three weeks ago, when he was brought in for amputation of the arm above the elbow. This right hand had been crusht between car-bumpers, and there was a compound fracture of the radius in its lower third. The railway surgeons had removed the third and fourth fingers and part of the metacarpal bones, but in spite of their excellent treatment of the case, septicemia developt rapidly and the dusky color of the skin of most of the hand indicated that gangrene was impending. Acute lymphatitis of the arm and septic ecchymosis progressing above the elbow had led the surgeons to wisely propose amputation of the upper arm, but the patient begged to have the arm saved if possible. His temperature on entrance to the hospital was about 104. The crusht tissues were throwing out quantities of reddish-brown fluid, of fetid odor, which we recognized as due to saprophytes.

The first treatment consisted in packing the crusht hand in dry charcoal-powder, frequently changed, and in giving the patient a high rectal injection of Epsom salt. On the following morning the temperature had dropt to 102, and the patient was feeling much better. The septic ecchymosis had ceast to progress and was already lessening. The lymphatitis had ceast to progress and was also lessening.

Charcoal-powder used in this way does two chief things: It absorbs fluid from the sloughing tissues and dries them so rapidly that they are no longer such fertile culture-media for bacteria. It seems also to engage the odoriferous ethers that are given off by saprophytes, and thus makes the wound "sweet."

The Epsom salt carries off toxines that are excreted into the intestinal canal, and that may be reabsorbed unless they are rapidly removed.

In addition to the use of charcoal and of Epsom salt, we allowed the patient to drink a great deal of water to produce a harmless diuresis that would aid in the elimination of toxines by the kidneys.

The patient began to recuperate from the beginning of treatment, but his temperature continued to range as high as 102 for three days, and it was evident that we needed to still further remove toxines from the blood; consequently we injected into the median basilic vein of the left arm 1500 cc. of normal saline solution at a temperature of 110. This promptly caused the rigor and subsequent sudden elevation of temperature, due to liberation of heat-units, for an hour or more, when the temperature dropt to normal, and it has remained there ever since, as you observe by this chart which I show. The chart shows almost a startling object-lesson on the value of this "lavage du sang," as the French call it, or "blood-washing" in English. The distension of the blood vessels with the normal saline solution excites such rapid action on the part of the emunctories that toxines are fairly "whisk" out of the blood; and in addition, a hyperleucocytosis is establisht. The unequal battle that has been waged between polyneuclear leucocytes and bacteria is suddenly turned to victory for the polyneuclears—thru the arrival of their ally, the surgeon.

After the patient's temperature had remained normal for a few days, the dried, gangrenous parts of the hand came away, leaving the upper row of carpal bones and just enough skin to cover them. I sutured these flaps over the end of the stump without taking pains to prepare them aseptically, and they promptly united by secondary adhesion in forty-eight hours. That is another point of interest in the case.

Why is it that we can remove gangrenous tissues, suture the adjacent tissues, without antiseptic precautions, and count upon getting union without suppuration? Before stating the reason, I will quote another example: A surgeon opens the abdomen of a patient with septic peritonitis, evacuates a quart of septic fluid, and accidentally pricks his finger a trifle with the point of a needle. The patient recovers, and the surgeon dies. Why is it that the patient with fifty billion times more septic fluid than the surgeon makes a good recovery, while the surgeon is buried? It is because the patient has had time to call out a vast army of polyneuclears, which are engaged in battle with the bacteria; the bacteria were winning when the surgeon swept away the larger part of their forces, and the polyneuclears were then able to easily defeat the remainder of the bacteria. The surgeon who prickt his finger, however, had not time to call out his polyneuclears, and the few virulent bacteria increast so rapidly that they kept the mastery from first to last. In this patient's case we knew that the healthy tissues adjacent to the gangrenous parts were so fortified with nuclein ramparts heapt up by the polynuclears that bacteria could no longer scale them, and we could prophesy that the skin-flaps sutured without antiseptic precautions would become united at once.

You observe one spot about as large as a five-cent piece that had to be left open, because the shape of the flaps would not quite allow of complete closure. This is now granulating, and I apply next the granulating surface a sheet of silver foil.

The worst thing that we can apply to a granulating surface is the thing most commonly chosen—gauze. New hyaline epithelium that is carrying on repair becomes entangled in gauze or cotton, and it is rudely torn away when the dressing is removed. Granulations also become entangled in the trap that is set for them by the unwise surgeon, and repair is delayed. We are then to avoid placing gauze or cotton next to a granulating surface. Gutta percha tissue or protective silk placed next the wound allow the new epithelium to shoot along rapidly beneath it without entanglement. Better than either is silver-foil, for it is very smooth, and whatever salts are formed with it here are antiseptic. If one cannot get silver-foil or gutta percha for covering the wound, a very good homemade protective can be manufactured in a few minutes by pouring collidion over a sheet of glass. The ether quickly evaporates, leaving a thin film that separates from the glass readily, and this can be cut up into strips of very neat protective.

You will note that we avoid washing pus away from the granulating surface before applying the protective. Granulations are so delicate and the beautiful hyaline epithelium is so fragile that wiping or washing with antiseptic solutions is usually detrimental.

It is almost impossible to train nurses to avoid cleasing granulating surfaces, and such surfaces are even subjected to the action of peroxide of hydrogen! There is no more necessary antiseptic in the surgeon's equipment than peroxide of hydrogen, but many have given it up because they destroyed granulations and new epithelium with it, and then placed the blame in the wrong quarter. Skilful and artistic neglect of a granulating wound requires long training and a nice knowledge of the pathology of repair. Give me peroxide of hydrogen, a sponge and a gauze dressing and I can keep a patient paying fees and keep him away from his work long after he should have been well! Further than that, he will have a hard, unsightly scar that could have been avoided. In this patient's case I shall not allow the wound to heal by granulation unless it is well in ten days. If any granulating surface remains at the end of that time, I shall use the curet, and then cut a Thiersch graft from his arm, and heal the wound at once—leaving a softer scar than would result from slower connective tissue replacement of the granulations.

*Part of a clinical lecture at the New York Post-Graduate Hospital.

Dr. Seneca D. Powell, of New York, has a very radical plan of treatment of ischio-rectal abscess. Under complete anesthesia he opens widely and then thoroly curets every part of the abscess-wall; next washing the cavity with pure carbolic acid, he neutralizes the excess of acid with alcohol, and finally dries the surfaces carefully and packs loosely with 2 per cent carbolic gauze. Ideal results have thus far been obtained in every case submitted to this treatment.

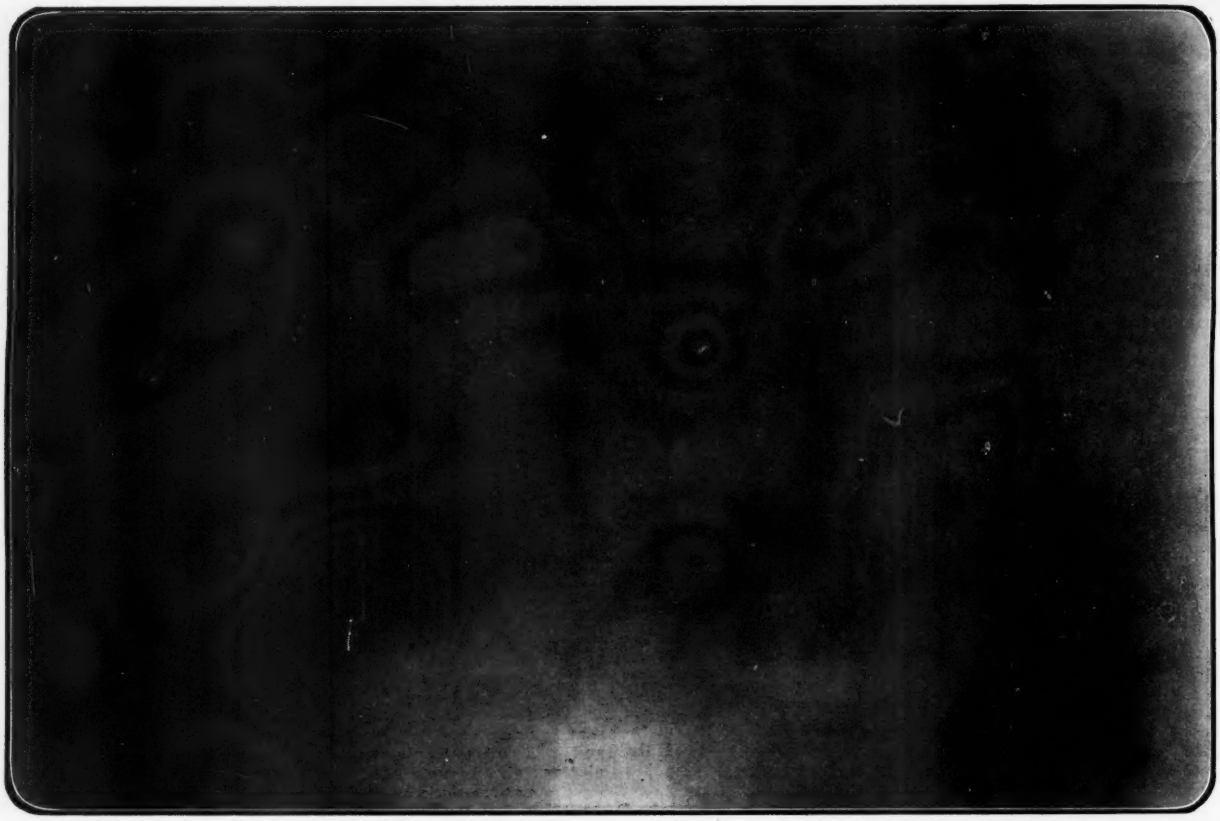


Fig. 1.

Fig. 2.

Radiographs Illustrating article of Dr. Miles F. Porter.

THE X-RAY IN DIAGNOSIS.*

BY MILES F. PORTER, A. M., M. D., FT. WAYNE, IND.
Professor of Surgery and Gynecology in the Ft. Wayne College of Medicine.

An X-ray picture cannot lie, but it may be the cause of false conclusions thru misinterpretation. To correctly interpret skiagraphs one must know what they are! They are in reality photographs of shadows; therefore whether the shadow is broader or narrower, longer or shorter, than the substance producing the shadow depends upon the relative positions of the tube, the plate and the part to be skiagrapht. A skiagraph of an oblique fracture taken with the tube in such a position that the rays fall upon the fracture plane at right angles will, in the absence of lateral displacement, fail to show the fracture.

Another essential to the correct interpretation of skiagraphic pictures is a thoro knowledge of anatomy. Epiphyseal cartilages throw no shadow, and normal epiphyseal attachments have been mistaken for fractures. The time at which the several epiphyses unite with their diaphyses must be remembered, and the influence of disease, especially rickets, upon this time. Other things being equal, the denser the tissue, the more markt the shadow, and vice versa; hence many of the tuberosities in childhood will appear abnormally short or small—thus leading possibly to the erroneous conclusion that a fracture exists.

Fig 3.

A knowledge of anatomy and pathology gained from reading and dissection, however thoro it may be, is not sufficient for one who would interpret correctly X-ray pictures. To be able to do this one must study anatomy and pathology with the aid of the fluoroscope and skiagraphs. Also the character of the tube, length of exposure, the influence of mechanic and chemic effects, and many other things which space will not permit me to refer to in this paper must be duly considered if we would avoid errors in interpreting either skiagraphs or fluoroscopic pictures.

Granted that one is possest of the essential knowledge and fully appreciates all sources of error, the X-rays are a valuable aid to diagnosis, and in some cases well-night indispensable. The X-ray findings must be given due weight, but may seldom, if ever, be regarded as absolute unless they are in harmony with other diagnostic findings.

X-rays, then, cannot take the place of other diagnostic measures, but in connection with these measures their value has already been demonstrated, and will continue to increase, and finally reach their proper level when the points indicated above have been mastered by him who would use the rays for diagnostic purposes.

The accompanying pictures will illustrate some of the points. Fig. 1 is a skiagraph of an injured elbow. It was interpreted by the one who took the picture as a fracture above the condyles of the humerus, together with a fracture of the olecranon with displacement of the latter forward between the joint surfaces. A careful physical examination and study of the case convinced me that there was fracture above the condyles, but no other injury. The outcome of the case (perfect motion without deformity) proved this opinion to be correct. The skiagraphist thought the olecranon too short to be normal, and mistook the apparently lengthened trochlear surface of the humerus for the displaced tip of the olecranon. This misinterpretation is accounted for by two facts. First, the tube was placed slightly above the front of the elbow and some distance from it. Hence the rays fell upon the joint obliquely, thus making the trochlea seem longer than usual, and the olecranon correspondingly short. Second, the patient was a boy six years of age, hence the olecranon was not relatively so fully developt as the shaft of the ulna, and the trochlea had not yet united with the shaft, thus giving the appearance in the picture of a shortened olecranon and a line of fracture between trochlea and shaft.

Figure 2 is a skiagraph which the patient brought with him when he came to me for the treatment of a supposed dislocation of the thigh. Suffice it to say that a careful inquiry into the history of the case, together with a careful examination, led me to the conclusion that the case was one of complete intra-capsular

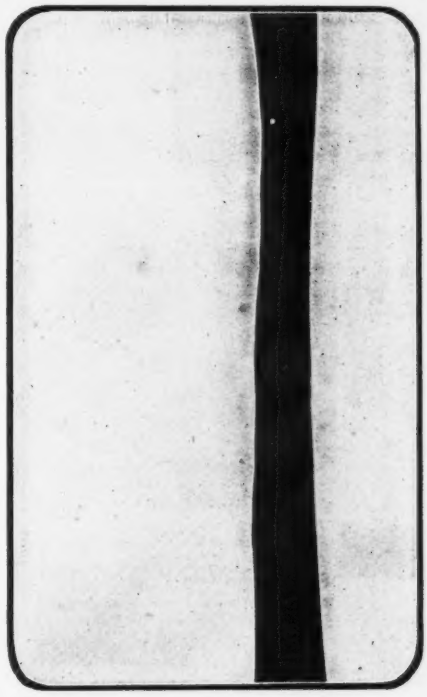


Fig 3 b.

fracture, occurring in a bone rendered unusually fragile by a rarifying osteitis. I opened the joint, removed the head of the bone and verified the diagnosis. The part which disease played in this case is a question of interest and importance, but does not concern us at the present time. A careful study of the skiagraph will convince any one, I think, that it does not show a dislocated hip, but that, on the contrary, it is in harmony with the history of the case and the physical signs that were present, which were those of fracture. A comparison of what was mistaken for the dislocated head of the femur with the head of the opposite femur will show the former much narrowed. The neck on the injured side is also shorter. What was mistaken for the head of the bone is the upper extremity of the lower fragment. I think also that the skiagraph shows, rather indistinctly, however, the upper margin of the head of the fractured bone in the acetabular cavity, where it was found at the operation. The shadow of the femur of the sound side, it will also be noted, is much darker than that of the injured side. This is unquestionably due, I think, to the osteporosis found on opening the joint.

Figure 3 (a and b) shows two skiagraphs of the same bone (tibia) taken from different points of view, and illustrates the point made above regarding X-ray pictures of oblique fractures. It also shows how a skiagraph may convey the idea that the fragments are in line and properly adjusted when in fact there is decided deformity.

*Read by invitation at the annual meeting of the Marshall County Medical Society, at Plymouth, Ind., April 11, 1901.

ON HAND DISINFECTION.*

BY GEO. HOWARD THOMPSON, M. D., ST. LOUIS, MO.,

Professor of Therapeutics and Experimental Medicine in the St. Louis College of Physicians and Surgeons.

To the railroad surgeon, as to every other operator, one of the most important of questions is: How may the hands be promptly rendered surgically clean? Of course, it is now admitted that the hands cannot by any means be rendered absolutely sterile, i. e., so that the bacteriologist cannot make cultures from them. But from a practical standpoint this is not essential—if by any means at our command we are able to so clean the hands that wound-infection is not likely to occur from them we should be satisfied; for after the field of operation has been made surgically clean and the hands properly prepared, frequent immersion during the progress of an operation in some antiseptic solution (as bichloride of mercury, 1 to 2,000), or even in plain sterilized water, will prevent infection of the wound from handling.

The chief source of danger is the finger nails. Lawson Tait's remark some years ago that the high mortality of German abdominal surgeons was due to dirty finger nails, is applicable to many operators other than Teutonic. The nails should be trimmed to "the quick" and most thoroly scrubbed with soap, water and brush for many minutes (when possible), then dried and the subungual spaces cleaned with a sharp knife, especial attention being paid to that roughened area of skin which lies immediately beneath the ends of the nails, and almost as much to the sulci around the root of the nails.

This important matter having been attended to, how best may the hands and nails be rendered noninfecting? First and foremost: more scrubbing! The average doctor does entirely too little scrubbing of hands and nails before immersing them in antiseptic or germicidal solutions; in other words, he depends too much upon his solutions and not enough on soap, water, brush and muscle. But when the scrubbing of hands (and immediately afterwards of the parts to be operated on) is completed, what solutions shall be employed to render the disinfection as nearly perfect as possible?

A number of interesting papers have recently been publisht upon this subject, showing the truth of Wormser's statement (Annales de Gynecologie, November, 1900) that: "this is the question of the day." Haegler, especially, has made many experiments in hand disinfection, carefully studying the integument of every portion of the hands in regard to the presence or absence of germs. Simple microscopical sections did not furnish the desired information, so he then experimented with India-ink, and found that the particles of the latter substance entered thru the sweat-ducts or along the sides of the hairs when the skin was sound. But if excoriations or fissures were present, these solutions of continuity were actually crowded by the granules of ink. He next applied artificial cultures of the staphylococcus to the skin of the hand and found (Obstetrics, April, 1901) "that the living cocci were governed by the same law as the granules of ink, altho they were not able to penetrate further into the sweat-ducts. The cultures did not appear to be able to multiply in or on the skin, and were not long in disappearing. These experiments go to show that the hand is naturally sterile save when there are traumatisms, sensible or minute, folds, etc. In order to test the power of mechanical lavage, Haegler again made use of India-ink and then sought to remove it by soap and water, frictions with the hand brush and sterilized towels. He found that these mechanical measures must be preceded by some procedure for removing the oily matter from the skin which would otherwise protect any microbes which chanced to be in the epidermal layers. There is no better agency for this purpose than soap, which is therefore of use from the chemical as well as the mechanical point of view."

Following the use of the tincture of soap (first recommended by Schleich) and scrub brush, Haegler advises the use of alcohol, applied freely, with a second scrubbing afterward.

Lanphear, of this city, who has likewise experimented extensively in hand-sterilization, uses first turpentine in free quantities, followed immediately after drying by a sterile towel by a large amount of alcohol, and finishes by two minutes' immersion in bichloride solution 1 to 2,000; and claims that this method is fairly efficacious and is applicable to all emergency operations.

When time permits and the solutions can be prepared, probably the most popular method (and a very effective one) is immersion of the hands first in a saturated solution of permanganate of potassium until almost black, then washing with saturated solution of oxalic acid until decolorization is secured and final application of sublimate solution, 1 to 2,000. But anything less than a saturated solution of permanganate is not worthy of dependence, and the solution of mercury must not be stronger than 1 to 2,000, as the strong solutions affect the skin in such way that only a most superficial and transitory effect is produced.

One of the chief points to be remembered, however, is that—as Doederlein has shown—the sterilization secured by alcohol, permanganate or other means is exceedingly short lived. It is one thing to render the hands surgically clean and another to keep them so during the operation. This is especially noticeable when rubber gloves are used, as pointed out by Binnie (Annals of Surgery, March, 1901), the glove-encased hand sweating profusely, and thus bringing the microbes from the deeper layers of the skin; so if the glove be punctured or torn, wound-infection is more apt to occur than if the gloves had not been worn. For this reason it is quite probable that in future rubber gloves will be far more often used than at present, but for exactly the opposite purpose than at present: instead of being for the protection of the patient against germ-laden hands, they will protect the surgeon's hands from infection from a dirty wound. (That is, the surgeon will apply gloves when compelled to handle wounds foul with saprophytes and various forms of cocci—those of erysipelas and pus, for example—in order that he may keep his hands free from virulently infective microorganisms.)

An additional source of danger, whether gloves be used or not, is that large quantities of infective microorganisms may be blown upon the hands from the mouth of surgeon or assistants; for which reason in cases of great magnitude (as abdominal operations, major amputations, etc.) it is wise to cover the mouth and nose with two or three layers of bichloride gauze, applied as a sort of mask, during the active stage of the operation. This may appear to be ultra-radical to many of loose antiseptic methods, but it is a plan being extensively adopted by progressive surgeons everywhere.

In conclusion, it may well be repeated that whatever the method of hand-disinfection employed, even in minor work, a basin of sublimate solution or of boiled water must be kept close by the operator and the hands very frequently rinst. If a contaminated surface be accidentally toucht, alcohol should be freely applied to the hands before resuming work.

At all times the surgeon should keep the hands in as good condition as possible, avoiding contact as much as possible with pus of any kind, and avoiding little injuries: scratches, cuts, etc.; and especially by keeping them out of too strong antiseptic solutions advocated by some enthusiastic writers. The maxim of a recent author is very meaty: "The surgeon should be as careful of his hands as a lady of her complexion."

*Written especially for the "Railroad Surgeons' Number."

The question how to deal with the vermiform appendix in complicated cases of inflammation thereof is discust by Dr. Howard A. Kelly, Professor of Gynecology and Abdominal Surgery in Johns Hopkins University, Baltimore, in American Medicine, April 20, with especial reference to those instances in which the appendix is found to be densely adherent, or when it opens into an abscess, or when there exists a more or less general peritonitis. In all such cases he dreads all avoidable contamination of the surrounding tissues with any part of the appendiceal abscess, and all avoidable injury to the coats of the adherent intestine. Kelly has found that when the appendix is diseased and densely adherent at its tip, practically the best plan is first to seek out and expose its base, which is detacht and divided so as to free the appendix from the cecum. The distal portion is now wrapt for protection in gauze, while the opening into the bowel is closed. Then the severed appendix is dissected out of its bed with much greater facility than was possible with both ends anchored, one to the cecum and one to the adhesions. This plan of procedure is especially useful in the gynecological field. In cases in which the vermiform appendix is attacht to a pyosalpinx, or an ovarian tumor, or a fibroid, after it is severed from the bowel, it can then be enucleated with the pelvic abscess or with the tumor. When the end of the appendix enters the abscess cavity surrounded by the adherent intestine, which cannot be stript off with safety, Kelly, after freeing the base of the appendix from cecum, traces it up until it enters the abscess cavity—generally under the ascending colon. If it cannot be separated from the adhesions without injuring the bowel, the appendix is to be graspt with a pair of forceps, on either side, close to the abscess, and split open and followed to its lumen, as a guide, by using a groove director and a pair of open scissors, with one blade in the appendix. The operator is thus enabled with certainty to enter the very middle of the abscess cavity, to lay it open and cleanse it out without doing any damage to the colon or enteron.

American Journal of Surgery and Gynecology

—EDITED BY—

EMORY LANPHEAR, M. D., Ph. D., LL. D.

Formerly Professor of Operative Surgery in the Kansas City Medical College and Professor of the Principles and Practice of Surgery in the St. Louis College of Physicians and Surgeons.

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The spelling found in this magazine is that voucht for by the most prominent educators of this country, and is recommended for general adoption.

ST. LOUIS, MAY, 1901.

LITERARY NOTES.

P. Blakiston's Son & Co., of Philadelphia, have begun the publication of a unique series of books: "A System of Physiological Therapeutics." It is to include eleven volumes, under the editorship of the talented Solomon Solis Cohen, A. M., M. D., Professor of Medicine and Therapeutics in the Philadelphia Polyclinic, and Lecturer on Clinical Medicine in Jefferson Medical College. The first volume has been received. It is on "Electrotherapy," and is written by Geo. W. Jacoby, M. D., Consulting Neurologist to the German Hospital of New York, to the Infirmary for Women and Children and to the Craig Colony for Epileptics. It is a beautifully printed, freely illustrated octavo volume of some 250 pages. In addition to the excellent writings of Dr. Jacoby, special articles by Drs. Da Costa, Jackson, Scheppegrell, Martin and Ohmann-Dumesnil supplement the work. The system is the first of the kind to be publisht in the English language. If the succeeding volumes are as truly valuable as this initial one, the number of subscribers will undoubtedly be far beyond even the most sanguine expectation of the projectors.

Obstetric and Gynecologic Nursing. By E. P. Davis, A. M., M. D., Professor of Obstetrics in Jefferson Medical College and Philadelphia Polyclinic. 12mo, volume of 402 pages, fully illustrated. Philadelphia and London: W. B. Saunders & Co., 1901. Price, $1.75 net. This volume is designed to furnish instruction as to the various duties of the obstetric and gynecologic nurse. Obstetric nursing demands some knowledge of natural pregnancy and of the signs of accidents and diseases which may occur during pregnancy. It also requires knowledge and experience in the care of the patient during the labor and her complete recovery, with the needs of her child. The obstetric nurse must also know how to help patient and doctor in the accidents and complications of labor, and has an important part to play in caring for mother and child in the diseases which occasionally attack them during the puerperal period. Gynecologic nursing requires special instruction and training, and a thoro knowledge and drill in asepsis and antisepsis are absolutely indispensable. Dr. H. G. Nicks, of this city—a most competent judge—declares this volume to be exactly the thing for such instruction.

The most recent production of the press of P. Blakiston's Son & Co. is a beautiful volume on "Uterine Fibromata," written by E. Stanmore Bishop, F. R. C. S., England., Fellow of the British Gynecological Society, Surgeon to Ancoats Hospital, Manchester, England. It is eminently a practical work, only enough description of anatomy, development and pathology being given to render clear the matter which follows. The author acknowledges his indebtedness to Drs. Howard Kelley, of Baltimore; Baldy and Penrose, of Philadelphia, and Gardner, of Montreal, as well as to some of his own countrymen for valuable points—a thing which might be done with good grace by some other writers on the eastern side of the Atlantic. The department devoted to the preparation of the patient for operation, to the technic and to the after-treatment, is especially valuable. A chapter of importance, also, is entitled "After-effects of Operation"—among them being insanity. The book sells for $3.50.

Dr. G. Archie Stockwell is back in medical journalism again. He is now editor of the Detroit Medical Journal, a new monthly just launcht by J. F. Hartz Co., publishers and booksellers. If the succeeding numbers are as interesting as the initial one, success is sure.

The Texas Medical Journal announces in its last issue the withdrawal of Dr. S. E. Hudson, who has for several years been associated with Dr. F. E. Daniel in the "Red Back." Dr. Hudson has done good work for the Texas Medical Journal, and retires with the best wishes of all the "editorial fraternity" of the medical press. Daniel will, of course, continue to make things "hum" in spite of the loss of his associate.

Practical Gynecology, by E. E. Montgomery, A. M., M. D., Professor of Gynecology in Jefferson Medical College, Philadelphia. 527 illustrations, 820 pages. Price, $5. P. Blakiston's Son & Co., Philadelphia. Such is the title of the best single-volume work on gynecology issued last year. Dr. Montgomery has been an authority on things gynecologic for so many years, and his writings have become so familiar to every doctor interested in diseases of women that the mere announcement that a treatise from his pen is on the market ought to result in an immense sale. It does not in any way disappoint one's anticipation as to completeness and thoroness. For the student and the busy practitioner it will be found to be a most excellent text-book. It also contains much which the specialist may read with profit.

Dr. C. A. L. Reed, the distinguisht president of the American Medical Association and a well-known teacher of diseases of women at the Cincinnati Hospital, has written a "Text-Book of Gynecology," which has just been publisht by D. Appleton & Co., of New York City. It is a neat volume of 900 pages and sells for $5. In the preparation of his book the author has displayed great ingenuity. While the greater part of it has been written by himself, there are subjects upon which he preferred the opinions of other teachers and students; so he selected certain celebrated authorities and secured their contributions, but instead of inserting these as monographs (as was done by Baldy, for example, in the American Text-Book of Gynecology), he carefully edited and united them, rendering the work consecutive, systematic and homogeneous. Some chapters—as on bacteriology of the female genital tract, the neurological aspects of pelvic diseases, etc.—therefore represent the very best work of several writers! Among the men who have thus assisted may be mentioned Foster, Herzog, Robb, Potter, Newman, Hare, Ballantyne, Dorsett, Ross, Mayo Robson, Johnson, Whitacre, Ravogli, Mann, McMurtry, Sinclair, Dunning, Carstens, Cameron, Coe, Zinke, Milliken, Harris, Gant and Dercum. Altogether, it is a very satisfactory treatise—one that will well repay careful reading by every surgeon and gynecologist.

A book of very great interest to every gynecologist and abdominal surgeon is "The Abdominal Brain and Automatic Visceral Ganglia;" by Byron Robinson, B. S., M. D., Professor of Surgery in the Chicago School of Gynecology and Abdominal Surgery, and Professor of Gynecology in Harvey Medical College. It is a neat octavo volume of some 260 pages, publisht by the Alkaloidal Clinic Company, Chicago, and copiously illustrated. After a consideration of the history of the sympathetic nervous system, Dr. Robinson takes up its significance in the production of certain abdominal and pelvic symptoms, its independence from the cerebro-spinal system, its physiology, discourses at some length on shock and then goes deeply into untrodden paths: general visceral neuroses and motor neuroses (intestinal movements), and concludes with a chapter on the subject of sudden acute abdominal pains. The book contains much matter of great importance, a large amount of which is the result of the author's individual work, and a lot of information not elsewhere obtainable save at great labor. It is written in the peculiar, concise style characteristic of its distinguisht author, a style familiar to readers of this journal.

For $3.50 one may purchase a most excellent little volume on: "Surgery: Its Theory and Practice;" by William Johnson Walsham, M. B., C. M., F. R. C. S., Lecturer on Surgery in St. Bartholomew's Hospital, London. It is printed in Great Britain, but sold in this country by P. Blakiston's Son & Co. This is the seventh edition—itself a tremendous recommendation—which contains more than 100 pages more matter than previous editions. It is illustrated with 483 pictures, including 16 skiagraphic plates. Its nearly 1000 pages are compactly printed, so that it contains a surprisingly large amount of information. And it is written in a concise, epigrammatic style which enables the author to cover the entire field of the theory and practice of surgery in a very satisfactory way. For the busy medical student, particularly, it should prove attractive.

To Messrs. William Wood & Co., of New York, this journal is indebted for a copy of Dr. Ferd C. Valentine's interesting book on "The Irrigation Treatment of Gonorrhea." It also includes a consideration of the local complications and sequelae of that dread disease. Every man who does much male genito-urinary surgery should read this contribution to the literature of the subject. Tho he may not agree with Professor Valentine on many points—and especially on the ease with which clap may be cured by irrigation—he will be well repaid for his time and trouble.

A book of deep interest to every doctor who does any abdominal surgery has lately been publisht by P. Blakiston's Son & Co., of Philadelphia. It is a 12mo of 370 pages, cloth, and sells for $2.50. The title is "Differential Diagnosis of the Separate Forms of Gall-Stone Disease." It is written by Prof. Hans Kehr and translated, with notes, by Dr. Wm. Wotkyns Seymour, of Troy, N. Y., formerly Professor of Gynecology in the University of Vermont. That Prof. Kehr (of Halberstadt) speaks authoritatively may be inferred from the fact that at the time this book was prepared in May, 1900, he had performed 427 abdominal sections for gall-stones alone! There is much valuable information in this book that cannot be found elsewhere; and more that is of great importance that has been compiled by its studious and industrious author. Get it; and after getting it, read it.

One of the latest books is: Physical Diagnosis in Obstetrics; by Dr. Edward A. Ayers, Professor of Obstetrics in the New York Polyclinic. It is intended as a guide in antepartum, partum and postpartum examinations; and is the result of eighteen years' experience as a teacher of physicians as well as undergraduates, for each of whom the book is written. It will be found especially valuable by those practicians who graduated before clinical obstetrics became a part of college instruction, and who wish to bring themselves up to the standard of obstetrical skill now deemed necessary in advanced circles. It cannot be denied that too many doctors are far "behind the times" in their obstetric practice, tho they know it not. This kind of a book will show them the error of their ways; and may lead many to better application of knowledge already possest but not practist. Modern midwifery must be conducted on purely surgical principles to be right. E. B. Theat & Co., 241-243 West Twenty-third street, New York, are the publishers. The price is $2.

SURGICAL NOTES.

While "Railway Surgery" does not differ so greatly from other forms of traumatic work necessitated by the complicated machinery of to-day, there are enough points of special interest to that great mass of doctors directly interested in railway work to warrant the issuance of a special number devoted to that particular class of surgery. The "railroad surgeon" will find in every number of this journal matter of sufficient value to repay for a whole year's subscription. So it is hoped that the several thousand railway surgeons to whom samples are sent will respond by subscribing.

Injuries to the spinal cord and head usually result in exaggeration of the patellar reflex, rather than its abolition. Pick (Philadelphia Medical Journal, March 16) reports four cases in which the knee-jerk was absent for some time following an injury to the head. The first man was kickt in the face by a horse; in his case knee-jerks were obtained only a week later, for the first time. The second man had been struck in the head by a locomotive. In this case the knee-jerks were not found until five days later. The third case received a stab-wound in the right parietal bone, after which the left knee-jerk failed until death six months afterward, tho left hemiplegia followed. In the fourth case, a man who had been shot in the mouth, both knee-jerks were absent for twelve days. Pick considers that the amount of shock is the probable cause of the failure to elicit knee-jerks for some days after cranial injury.

Fisher's method of treating chronic ulcers of the leg is as follows (Gailiard's Medical Journal says): (1) Use aseptic methods with the same care you would on an aseptic wound. (2) Spray with peroxide of hydrogen thoroly. (3) Make ulcers perfectly dry with absorbent cotton. (4) Powder with acetanilid, one part, mixt with four of boric acid powder. (5) Use strips of dry antiseptic gauze, an inch wide and a yard long, over each ulcer. Lay them on loosely, so as to be effective absorbents. (6) Place antiseptic cotton on top of gauze. (7) Bandage from toes to knee with firm cotton bandages. (8) Bandage with starch bandage when patient shows an inclination to tamper with the dressing. When the ulcer is deep, put a disc of pasteboard large enough to extend half an inch beyond the edge of the ulcer, and cut a hole about the size of the ulcer (a little smaller) in the center of the disc. Bandage this on over the ulcer. In a day or two after using this disc the ulcer will be completely filled with granulations. If the ulcer has granulated above the surface, bandage a complete disc of pasteboard over the ulcer. It is a simpler way of reducing granulations than by the use of lunar caustic. Powdered charcoal should be used on ulcers that are gangrenous before using the acetanilid mixture. The legs must be kept free from dead cuticle, which forms an excellent nidus for germs. The free use of alcohol and a pair of forceps will keep them clean.

A note of great interest to railway surgeons is that given in International Journal of Surgery, thus: When a patient has been very badly injured, remember that a condition of buoyant hopefulness is an indication of shock rather than of vitality, and do not let it lead you into the idea that the case is one favorable for operation. Count the pulse and investigate the temperature of the skin. The chances will be that heat and stimulation are needed.

Mosher, of Baltimore, has examined 1,655 cadavers to determine the frequency of gall-stones, regardless of the immediate cause of death. He has found that 7 per cent of dead bodies have gall-stones. Schroeder, of Strasburg, found 12 per cent in his post mortem work.

At St. Mary's Infirmary, St. Louis, Lanphear recently had a case of post-operative insanity. It followed resection of nine inches of the ileum for gangrenous hernia. Union of gut (end-to-end enterorrhaphy) occurred and there was no sepsis from the external wound, but acute mania began on the fourth day, and has continued for nearly a month without any indication of improvement. There was no hereditary tendency to mental trouble in this instance, tho, as a rule, the first factor in the production of post-operative insanity is heredity; the second is sepsis; and the third group of causes, such as loss of blood and defective action of the kidneys. It seems probable that the essential prerequisite for the development of post-operative insanity must be a neurotic organization arising either from hereditary taint or acquired nervous weakness and instability; a tendency ,in other words, to take on diseased or perverted action in consequence of any disturbing influence. This has led to the rule adopted by most surgeons, viz: Under no circumstances ought any insane woman to be operated upon unless for some distinct condition that is compromising life.

Dr. Samuel Lloyd, Professor of Surgery in the New York Post-Graduate Medical School, contributes a remarkable paper to Journal of the American Medical Association (April 13 and April 20). In the matter of tumors of the spinal cord, he has collected 51 cases, including some of his own. He had a case of hydatids which produced compression of the cord, and in which he operated, with complete recovery, the patient being able to return to his ordinary occupation. Many of the deaths following operations for tumors of the spinal cord he finds to be due not to the operation, but to the nature of the growth. Only 8 per cent of the cases operated upon have died as a direct result of the operation itself. Recoveries from operative interference in fractures of the cervical region of the spine he finds to have been very few, but the prognosis in the lumbar and dorsal regions is much better. The nature of the fracture itself will also influence the prognosis; for instance, where there is complete severance of the cord, as evidenced by the rapid appearance of bedsores, paresis of the bladder and rectum, and obliteration of the deep reflexes, operative interference must ever hold out little hope of benefit. Lloyd does not, however, agree with Keen that where deep reflexes are absent operative interference is absolutely contra-indicated, because a number of cases are on record where the reflexes have been absent and yet there has not been complete severance of the cord, and improvement has followed laminectomy. Statistics show that most of the deaths following fracture-dislocation of the spine occur within a few days, and hence the number of deaths which are attributed to the operation would undoubtedly have taken place even tho no operation had been performed. As to the best time at which to operate, Lloyd thinks that it is best to wait until the patient recovers from the shock and until it is evidenced that there will be no spontaneous recovery complete enough to make life bearable. If the patient shows a tendency to gradually improve after the injury, operation should not be done, but where the symptoms show progression or seem to have reacht the end of improvement, operation should be undertaken.

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Successfully used in **DYSPEPSIA, GASTRITIS, GASTRIC ULCER, HEART-BURN, CONSTIPATION, DIARRHŒA, TYPHOID FEVER, TYPHUS, YELLOW FEVER, CHOLERA INFANTUM, ASIATIC CHOLERA, DYSENTERY, Etc.**

Send for free 300-page book "Rational Treatment of Diseases caused by Germs," containing reprints of 140 scientific articles by leading contributors to medical literature.

Physicians remitting 50 cents will receive one complimentary sample of each, "Hydrozone" and "Glycozone."

Hydrozone is put up only in extra small, small, medium and large size bottles bearing a red label, white letters, gold and blue border, with my signature.

Glycozone is put up only in 4-oz., 8-oz. and 16-oz. bottles bearing a yellow label, white and blue border, with my signature.

MARCHAND'S EYE BALSAM
cures all inflammatory and contagious diseases of the eyes.

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PREPARED ONLY BY

Charles Marchand

Chemist and Graduate of the "Ecole Centrale des Arts et Manufactures de Paris" (France).

57-59 Prince St., New York.

☞ SOLD BY LEADING DRUGGISTS. AVOID IMITATIONS. MENTION THIS PUBLICATION. ☜

·DR· PRICE'S cream BAKING POWDER

ABSOLUTELY PURE AND WHOLESOME.

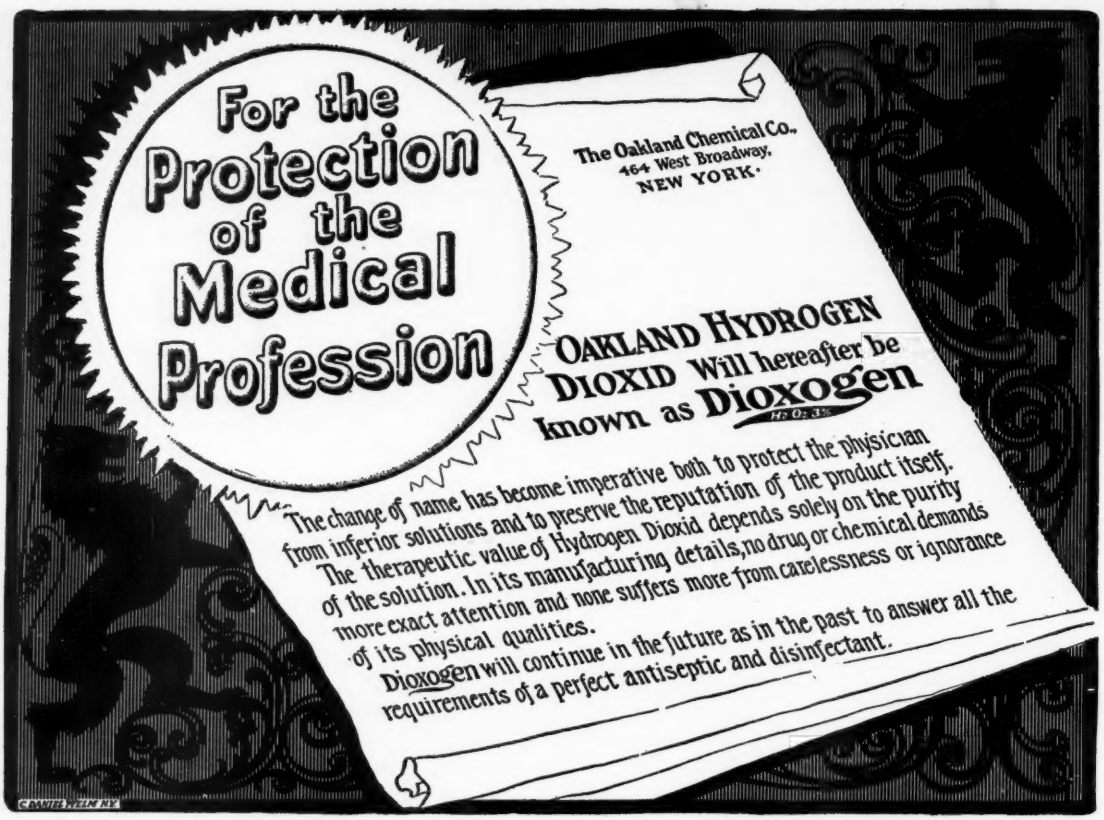
Dr. Price's Cream Baking Powder is made from cream of tartar, a product of grape, and the most healthful of all fruit acids.

Dr. Price's Baking Powder raises the bread without fermentation, and without affecting or changing the constituents of the flour.

Fresh bread, cake, biscuit, griddlecakes, etc., raised with Dr. Price's Baking Powder, may be eaten by persons of dyspeptic tendencies or the most sensitive stomachs without distressing results.

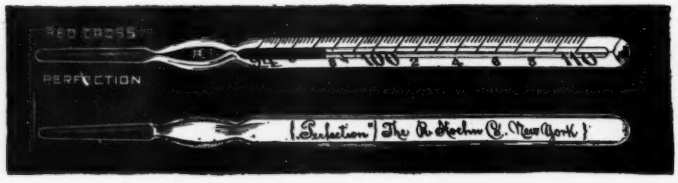
Food for the sick requiring to be leavened is made more nutritious and healthful by the use of this leavening agent than by yeast or other baking powder.

NOTE—Cheap and imitation baking powders are recommended and their sale pushed by certain grocers because of the greater profit in them These imitation powders almost invariably are made of alum. Alum costs but two cents a pound, while cream of tartar costs over thirty cents. Alum is employed simply because it is cheap, but every physician knows that the use of this corrosive poison in food is at the cost of health. Think of nursing mothers delicate girls and sickly children being fed on food made with alum!


For the Protection of the Medical Profession
The Oakland Chemical Co.,
464 West Broadway,
NEW YORK.
OAKLAND HYDROGEN DIOXID Will hereafter be known as Dioxogen
H2 O2 3%
The change of name has become imperative both to protect the physician from inferior solutions and to preserve the reputation of the product itself.
The therapeutic value of Hydrogen Dioxid depends solely on the purity of the solution. In its manufacturing details, no drug or chemical demands more exact attention and none suffers more from carelessness or ignorance of its physical qualities.
Dioxogen will continue in the future as in the past to answer all the requirements of a perfect antiseptic and disinfectant.

THE R. HOEHN CO.'S

Red Cross "Perfection" Clinical Thermometer.



After long experimenting we have succeeded in producing lens **front** tubing, which will magnify fully as well as that of which the **Hicks'** Clinical Thermometers are made. We are the only American manufacturers who have accomplished this. Our best workmen have used their utmost care to manufacture this tubing into the most perfect Clinical Thermometers which can be produced, and these we are offering under the name "Perfection."

In order to insure the public against imitation, this name, "Perfection," as also (our REGISTERED TRADE-MARK), is etched on every thermometer, whether bearing our name or that of our dealers. This cross is always etched in RED on the genuine. This is the only American made Clinical which can take the place of Hicks' in every respect.

These thermometers are all *Quick Reading*, i. e., every *two* degrees are numbered on the tube, as shown in the above cut.

They are pointed and divided with the utmost accuracy. Moreover, the tubes of which they are made are thoroughly seasoned, and we guarantee that their reading will not rise.

We will exchange, FREE OF CHARGE, any PERFECTION Clinical Thermometer which has not given satisfaction within ONE YEAR.

THE R. HOEHN CO., Mfrs., 80 and 82 Chambers St., New York.

For sale by all Surgical Instrument Dealers and Druggists.

THE CHICAGO SCHOOL OF GYNECOLOGY AND ABDOMINAL SURGERY

A POST-GRADUATE SCHOOL

For special and clinical instruction in Gynecologic examinations, in diseases of the Abdomen and Abdominal Surgery. Classes limited to 6 physicians, who also witness operations, standing near the operator. Courses of four weeks are given the year round, excepting the month of August. Address

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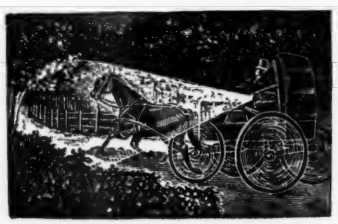
Doctor's Automatic Acetylene Driving Lamp



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Cannot Jar or Blow Out.

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AMERICAN JOURNAL PUBLISHING COMPANY,

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NOTICE.

Sander & Son's Eucalyptol is invaluable in inflammation of the mucous membranes, and in all septic and infectious diseases. Apply to Dr. Sander, Belle Plaine, Ia., for sample and literature of Sander's Eucalyptol. Meyer Bros. Drug Company, St. Louis, Mo., sole agents.

DO YOU KNOW THE VIRTUES

Of the water and climate of Eureka Springs, Ark? Do you want to know? We have a booklet on the subject which is yours for the asking; it is free. Address Bryan Snyder, G. P. A., Frisco Line, St. Louis.

PROFESSOR CAMPBELL, "OF CHICAGO."

Dr. O. Beverly Campbell, of St. Joseph, Professor of Gynecology in Central Medical College, will soon remove to the city of Chicago to accept a professorship of gynecology in the Chicago Post-Graduate Medical School and Hospital.

THE GRAND PRIZE FOR ARTIFICIAL LIMBS.

The medical profession should note the fact that the firm of A. A. Marks, 701 Broadway, New York, was awarded at the Paris Exposition the grand prize for the excellence of their artificial limbs. When it is borne in mind that the basis on which the award was made was that it took twenty points of merit to entitle the exhibitor to this much-to-be-envied prize, it can be readily understood how great is the award and what a magnificent showing A. A. Marks must have made to be entitled to such distinction. We congratulate the firm upon the very high position to which they have attained in this industry. It speaks volumes for the character of their work.—Canadian Journal of Medicine and Surgery.

PTOMAINES.

One of the leading specialists of the South, Dr. W. L. Bullard, of Columbus, Ga., concludes a highly interesting and instructive article on "Ptomaines" in the following manner: "In my 20 years' experience at special work, where the quick and safe relief of pain is the object of treatment, I have found nothing to equal five-grain Antikamnia tablets. This remedy is not only a foe to ptomaines and their absorption, but is also a corrective in cases of poisoning by food decomposition. As purely pain relievers, these tablets, of course, are recognized the world over as non-cardiac depressants, and free from any tendency to produce habit. I would also call the attention of the profession to those instances wherein it is strongly advisable to rid the system of the offending materies morbi as well as to correct their harmful influences whether it be in the poisons of food decomposition or the absorption of ptomaines. In such cases I know of nothing better than Laxative Antikamnia Tablets. These tablets judiciously administered rid the system in a perfectly natural manner of the offending material and lessen, therefore, the quantity of medicine necessary to be taken by the patient, and produce no disturbing influences on the delicate molecular interplay of the nervous structure."

"RUDOLPH VIRCHOW FUND."

To the American Medical Profession:

On October 13, 1901, Rudolph Virchow will be eighty years old. When he completed his seventieth year a fund was started in his honor to enable the great master to facilitate scientific research by establishing scholarships and by encouraging special medical and biological studies. Contributions to that "Rudolph Virchow Fund" were furnished by those in all countries interested in progressive medicine, as an homage to the man whose name is always certain to arouse admiration and enthusiasm.

In Berlin a large committee, containing among others the names of A. Bastian, Von Coler, A. Entenburg, B. Fraenkel, O. Israel, Fr. Koenig, C. Posner and W. Waldeyer, has been formed to call for contributions which are to be added to the original "Rudolph Virchow Fund" so as to increase its efficiency. The committee expresses the opinion that in no betted way, and in none more agreeable to the great leader of modern medicine, can his eightieth birthday be celebrated, and ask for the sympathy and co-operation of all those engaged in the study and practice of scientific medicine all over the globe.

The undersigned have formed a sub-committee for the purpose of making the American profession acquainted with the intentions of the Berlin committee, and urge their colleagues to participate in honoring the very man who has done more, these fifty years, than any other to make medicine a science, and international.

Subscriptions should be sent to their secretary, who will receipt therefor.

CHARLES A. L. REED,
President of the American Medical Association.
HENRY P. BOWDITCH,
Prest. of Congress of American Physicians and Surgeons.
WILLIAM K. WELCH,
Johns Hopkins University.
ROBERT F. WEIR,
President of the New York Academy of Medicine.
A. JACOBI, Secretary, 110 West Thirty-fourth Street, New York.

A CHANGE OF NAME.

For the protection of the medical profession, Oakland Hydrogen Dioxid will hereafter be known as Dioxogen.

The change of name has become imperative both to protect the physician from inferior solutions and to preserve the reputation of the product itself.

The therapeutic value of Hydrogen Dioxid depends solely on the purity of the solution. In its manufacturing details, no drug or chemical demands more exact attention and none suffers more from carelessness or ignorance of its physical qualities.

Dioxogen will continue in the future as in the past to answer all the requirements of a perfect antiseptic and disinfectant.

HUMANE BRIDLE.

Attention of readers of the Journal is called to the advertisement of the Porter Humane Bridle, which appears on page vii. No one better than a doctor can appreciate the value of such a device.

THE THYROID TREATMENT.

There is perhaps no subject which has elicited more investigation as a therapeutic resource in this period of general rapid advance in medicine than the employment of the thyroid gland as a remedial agent.

The thyroid treatment is specific in simple goitre, myxedema, cretinism and obesity; is of great value in congestion of the pelvic organs, menorrhagia, endometritis and other gynecological and obstetrical cases; while the reports made of its employment

in lupus psoriasis, scleroderma, ichthyosis and other skin diseases of an intractable nature have been such as to warrant further experiment. Prostatic enlargement, melancholia and mental disorders, especially those of the puerperal and climacteric periods, have been greatly benefited by it.

Armour & Co., Chicago, offer samples and literature to physicians sending their professional cards.

SANMETTO IN DEBILITY AND IRRITABILITY OF GENITO-URINARY ORGANS FOLLOWING LA GRIPPE.

Have been using Sanmetto for past three years with very satisfactory results in different forms of debility and irritability of genito-urinary organs. Am now using it on case of old lady, the sequelae of la grippe, that is giving gratifying results. Was attacked after la grippe with hematuria, irritable stomach and a general debility. After trying various remedies without success, placed her on Sanmetto, which she retained, and at once a markt improvement began. She is now on second bottle and improvement in general strength is markt. Hematuria is stopped. In cases of chronic urethritis I consider Sanmetto a specific. Will continue to keep Sanmetto within reach.

FRANK McCORMICK, M. D.,
Member Sandusky County Medical Society.
Fremont, O.

PUBLISHERS BEWARE!

One Dr. W. G. Brymer, living at Beef Creek, Ind. Terr., subscribed for the American Journal of Surgery and Gynecology in December, 1898, and the Journal has been sent him regularly since that date. He takes the Journal from the postoffice, but REFUSES TO TAKE A BILL sent in a letter bearing the return address of the American Journal Pub. Co.!

ST. LOUIS DISTRICT SOCIETY.

This society held a very interesting meeting in St. Louis April 11 with the following program:

At City Hospital, 17th and Pine, at 9 o'clock, Sharp.

MORNING SESSION.

Clinic on Diseases of the Eye .....James Moores Ball, St. Louis.
Clinic on Internal Medicine .....Hugo Summa, St. Louis.
Surgical Operation .....H. L. Nietert (Supt. City Hospital).
Gynecological Operation .....Edward Wallace Lee, St. Louis.

AFTERNOON SESSION.

At Planters Hotel, 4th and Pine, at 2 o'clock.

Report of Case of Lupus of Tongue.....J. C. Murphy, St. Louis.
Microscopic Demonstration of Same Case....Carl Fisch, St. Louis.
Necessity for Application of Surgical Methods to Obstetric Practice .....F. J. Tainter, Warrenton.
Practical Points in Pediatrics....R. B. H. Gradwohl, St. Louis.
Some Unusual Uses of Carbolic Acid..O. L. Muench, Washington.
The Financial Side of Operations in Country Practice, G. C. Eggers, Clayton.
Specimens of the entire Tibia Removed for Tuberculosis, Emory Lanphear, St. Louis.
Appointments of Delegates to Missouri State and American Medical Asociations.

EVENING SESSION.

At Planters Hotel, at 6:30 p. m.

Banquet (to members only)..Given by Emory Lanphear, St. Louis.

MAL-ASSIMILATION.

I have prescribed Seng for indigestion and mal-assimilation and find the improvement markt from the beginning of its administration.I have prescribed it very successfully in a number of cases. Whenever I meet the two above conditions I never fail to use it.

J. H. LAWRENCE, M. D.,
Smithfield, Va.

SOUTHWESTERN TRI-STATE MEDICAL SOCIETY OF TEXAS, OKLAHOMA AND INDIAN TERRITORY.

The ensuing meeting of the Tri-State Medical Society will be held at Dallas, Tex., on October 1, 2 and 3, 1901.

It is the desire of the officers and promoters of this society to enroll a large membership and conduct its deliberations on lines similar to those of other institutions of like character throughout the country.

Already its membership is gratifyingly large and composed of the very best material from the states represented in its organization.

The attention of the profession is therefore called to the importance of enlarging the present membership, its efficiency and representative character.

At the next meeting the profession of Dallas will do everything possible to give a cordial welcome to those who may attend and make their stay pleasant and profitable.

H. K. LEAKE, M. D., President;
SAMUEL E. MILLIKEN, M. D., Secretary, Dallas, Tex.

COLLEGE OF PHYSICIANS AND SURGEONS.

A number of additions to the faculty of the St. Louis College of Physicians and Surgeons will soon be made. Under the wise direction of its present dean (Dr. Waldo Briggs) this school is enjoying a continuous prosperity never before known in its history. With a little stronger teaching corps it will be a strong competitor for the leadership of Missouri schools.

KANSAS CITY COLLEGES.

There has been no medical college organized in Kansas City within the past six months, tho what the early spring may hold in store is yet unknown. For its population, Kansas City is the greatest college town on earth.

A NEW CITY HOSPITAL FOR ST. LOUIS.

It begins to look—at last—as if St. Louis is to have a magnificent city hospital erected on the site of the one mercifully destroyed by the late lamented cyclone.

STATE HOSPITALS FOR ST. LOUIS.

The attempt to secure an appropriation for a state hospital, to be built in the vicinity of St. Louis, does not promise to be successful—much as it is desired.

METATARSAL FRACTURE.

American Medicine, of April 20, has an article by Dr. Carl Beck, of New York, on metatarsal fracture. He thinks that before the use of the Roentgen X-ray as a guide to diagnosis this fracture was probably often overlookt. When only one or two metatarsal bones are broken, but little tendency to displacement is present, which explains why the symptoms are not pronounced. In the matter of treatment, Beck thinks if there is no displacement present in fracture of any of the second, third or fourth metatarsal bones, a simple and short plaster of Paris dressing meets the requirements. The patient should be kept in bed the first week, and during the next two weeks should be encouraged to walk, protected by the proper ambulatory dressings. If the first or fifth metatarsus is broken, and no displacement is noticeable, a small strip of moss-board slightly moistened is placed alongside the outer or inner margin of the foot before the plaster of Paris dressing is applied. If there is displacement of the second, third or fourth metatarsal bone, pressure will then reduce the fragments, which are then kept in place as indicated in the other condition. If the displacement is sideways (instead of in the dorsal or plantar direction), reduction is best accomplisht by grasping the fragments as firmly as possible near their epiphyseal end and alternately turning and shifting them until the reposition is perfect.